The LADIES' *Diary:*

OR
WOMAN'S ALMANACK,

For the Year of our LORD 1794;
Being the Second after BISSEXTILE, or LEAP-YEAR.
Containing New Improvements in ARTS and SCIENCES,
And many Entertaining PARTICULARS:
Designed for the *Use* and *Diversion* of the

FAIR-SEX.

The Ninety-first ALMANACK Published of this Kind.

VIRTUE and SENSE, with FEMALE-SOFTNESS join'd,
(ALL that subdues and captivates Mankind!)
In BRITAIN's Matchless FAIR resplendent shine;
THEY rule LOVE's Empire by a Right Divine:
Justly their Charms the astonish'd World admires,
Whom *Royal* CHARLOTTE's bright Example fires.

Y. of Christ.		Ys. since.	Y. of Christ.		Ys. since.
1600	King Charles I. born	194	1714	Q. Ann died, K. Geo. I. succ.	80
1603	Q. Eliz. died, K. Ja. succ.	191	1715	Rebellion in the north -	79
1603	A great Plague in London	191	1716	A very great frost -	78
1605	Popish Gun-powder Plot	189	1726	Sir Isaac Newton died -	68
1616	Shakspeare the poet died	178	1727	K. Geo. I. died, Geo. II. succ.	67
1625	K. James died, Cha. I. succ.	169	1739	War against Spain declared	55
1641	Bloody Irish massacre -	153	1739	A very great frost -	55
1642	Sir I. Newton born, Dec. 25	152	1743	A great comet appeared	51
1649	K. Charles I. beheaded	145	1744	War against France declared	50
1558	Oliver Cromwell died -	136	1745	Rebellion in Scotland -	49
1660	K. Charles II. restored	134	1748	A general peace -	46
1662	Royal Society instituted	132	1750	Westminster bridge finished	44
1665	Died of the plague 68,586	129	1752	Date and Calendar altered	42
1666	Great fire in London -	128	1756	War against France declared	38
1666	War against Denmark decl.	128	1760	K. Geo. II. died, G. III. succ.	34
1667	Peace with Hol. Fr. & Den.	127	1762	American philos. soc. instit.	32
1672	War against Holland decl.	122	1762	War against Spain declared	32
1672	Halfpence & Farth. coined	122	1763	Peace with France & Spain	31
1674	Peace with Holland procl.	120	1765	Otaheite discovered -	29
1679	Habeas Corpus act passed	115	1770	Blackfriars bridge finished	24
1685	K. Cha. II. died, Ja. II. succ.	109	1772	A revolution in Denmark	22
1688	Prince of Orange landed	106	1772	A revolution in Sweden	22
1688	K. James II. abdicated	106	1775	War against America begun	19
1689	Wm. and Mary crowned	105	1776	America declared independent	18
1693	Hackney coaches established	101	1778	French treaty with America	16
1702	K. Wm. died, Q. Ann succ.	92	1778	War against France begun	16
1702	War against France declared	92	1779	War against Spain begun	15
1707	England & Scotland united	87	1780	War against Holland begun	14
1713	Peace with France procl.	81	1783	A general peace -	11

BIRTH-DAYS, [N.S.] and YEARS, of the ROYAL FAMILY of GREAT BRITAIN.

KING GEORGE III. June 4,	1738		Prince Aug. Fred. Jan. 27,		1773
Prince of Wales, August 12,	1762		Prince Adolph. Fred. Feb. 24,		1774
Duke of York, August 16,	1763		Princess Mary, April 25, -		1776
Duke of Clarence, Aug. 21,	1765		Princess Sophia, Nov. 3, -		1777
Princess Royal, Septem. 29,	1766		Princess Amelia, Aug. 7, -		1783
Prince Edward, Nov. 2, -	1767		Queen Charlotte, May 19, -		1744
Prs. Augusta Sophia, Nov. 8,	1768		Prs. Augusta of Brunsw. Aug. 11,		1737
Prs. Elizabeth, May 22, -	1770		Duke of Gloucester, Nov. 25,		1743
Prince Ernest Augustus, June 5,	1771				

YEARS of BIRTHS of the Principal SOVEREIGN PRINCES of EUROPE.

Pius VI. Pope - -	1717		Francis II. Emp. Germ. -	1767
Victor Amada Maria, K. Sardinia	1726		William V. Stadtholder, -	1748
Catherine, Empress of Russia,	1729		Charles, IV. King of Spain,	1748
Stanislaus Aug. King of Poland	1732		Christian VII. K. of Denmark,	1749
Maria, Queen of Portugal -	1734		Ferdinand IV. King of Sicily,	1751
Fred. William, King of Prussia,	1744		Selim III. Grand Seignor -	1761
Gustavus IV. King of Sweden,	1778			

New Moon,	1ft, 40m. paft 11 night.	
First Quarter,	8th, 54m. paft 4 aftern.	Sun enters ♒
Full Moon,	16th, 32m. paft 3 morn.	19d. 5h. 53m.
Laft Quarter,	24th, 45m. paft 8 morn.	
New Moon,	31ft, 20m. paft 11 morn.	

1	W	Circumcifion		8	4	3	56	22s58	☽ fets		N
2	Th				4		56	53	4 a 57		1
3	F				3		57	47	6	7	2
4	S				2		58	41	7	23	3
5	E	2 S. aft. Chri.	OldChr.D.		2		58	34	8	41	4
6	M	Epiphany	Twelfth-day		1		59	27	10	1	5
7	Tu				0	4	0	19	11	18	6
8	W	Lucian		7	59		1	11	morn		7
9	Th				58		2	2	0	33	8
10	F				57		3	21 53	1	47	9
11	S				56		4	44	2	58	10
12	E	1 S. af. Epip.	OldN.Y.day		55		5	34	4	6	11
13	M	Cam.Te.b.	Hila.PlowM.		54		6	24	5	9	12
14	Tu	Oxf. Term begins			53		7	13	6	7	13
15	W				52		8	2	6	58	14
16	Th				50		10	20 50	☽ rifes		F
17	F	Old Twelfth Day			49		11	38	5 a 57		16
18	S	Q. Char. b. d. k.	Prifca		48		12	26	6	57	17
19	E	2 Sun. aft. Epiphany			46		14	13	7	59	18
20	M	Fabian. Hil. Ter. 1 return			45		15	0	9	2	19
21	Tu	Agnes			44		16	19 47	10	3	20
22	W	Vincent			42		18	33	11	6	21
23	Th	Hilary Term begins			41		19	19	morn		22
24	F				39		21	5	0	11	23
25	S	Converfion of St. Paul			38		22	18 50	1	16	24
26	E	3 Sun. aft. Epiphany			36		24	34	2	23	25
27	M	Pr. Aug. F. b.	Hilary 2 re.		34		26	19	3	31	26
28	Tu				33		27	3	4	36	27
29	W				31		29	17 47	5	37	28
30	Th	K. Charles I. mart. 1649			30		30	30	6	30	29
31	F				28		32	14	7	19	N

Days	L. of D.	Day Inc.	D. breaks	Tw. ends	Sun Eaft	Cl. bef. S.	7 Stars So.
1	7 52	0 8	5 59	6 1	4 41	4' 15"	8 a 43
6	58	14	57	3	43	6 32	21
11	8 8	24	54	6	46	8 36	7 59
16	20	36	49	11	49	10 24	38
21	32	48	44	16	53	11 55	17
26	48	1 4	38	22	57	13 7	6 55

First Quarter,	7th,	51m. paſt	2 morn.
Full Moon,	14th,	5m. paſt	10 night.
Laſt Quarter,	23d,	51m. paſt	1 morn.

Sun enters ♓
17d. 20h. 41m.

M D	W D	Sundays, Holydays, &c.	Sun riſes	Sun ſets	Sun's decl.	☽ riſes & ſets	☽'s Age
1	S		7 26	4 34	16 s 56	☽ ſets	1
2	E	4 S. af. Epip. Purif. or Can.	25	35	39	7 a 29	2
3	M	*Blaſe.* Hilary Term 3 ret.	23	37	21	8 52	3
4	Tu		21	39	3	10 11	4
5	W	*Agatha*	19	41	15 45	11 28	5
6	Th		18	42	27	morn	6
7	F		16	44	8	☉ 43	7
8	S		14	46	14 49	1 54	8
9	E	5 Sunday after Epiphany	12	48	30	2 58	9
10	M	Hilary Term 4th return	10	50	10	3 57	10
11	Tu		9	51	13 50	4 49	11
12	W	Hilary Term ends	7	53	30	5 34	12
13	Th	*Old Candlemas day*	5	55	10	6 13	13
14	F	*Valentine*	3	57	12 50	☽ riſes	F
15	S		1	59	29	5 a 45	15
16	E	Septuageſima Sunday	6 59	5 1	8	6 47	16
17	M		57	3	11 47	7 50	17
18	Tu		55	5	26	8 55	18
19	W		53	7	5	9 59	19
20	Th		52	8	10 43	11 3	20
21	F		50	10	21	morn	21
22	S		48	12	0	0 7	22
23	E	Sexageſima Sunday	46	14	9 38	1 14	23
24	M	St. Matthi. Pr. Ad. Fred. b.	44	16	15	2 19	24
25	Tu	*Cam. Term divides noon*	42	18	8 53	3 19	25
26	W		40	20	31	4 16	26
27	Th		38	22	8	5 6	27
28	F		36	24	7 45	5 49	28

Days	L. of D.		Day Inc.		D. breaks		Tw. ends		Sun Eaſt	Cl. bef. S.		7 Stars So.	
1	9	8	1	24	5	31	6	29	5 4	14'	7"	6 a	32
6		24		40		23		37	9		33		11
11		42		58		15		45	15		40	5	51
16	10	2	2	18		6		54	20		27		32
21		20		36	4	57	7	3	26	13	56		13
26		40		56		48		12	32		10	4	54

New Moon,	1ſt, 54m. paſt 9 night.	
First Quarter,	8th, 57m. paſt 2 aftern.	**Sun enters ♈**
Full Moon,	16th, 53m. paſt 4 aftern.	**19d. 21h. 5m.**
Laſt Quarter,	24th, 10m. paſt 3 aftern.	
New Moon,	31ſt, 21m. paſt 7 morn.	

1	S	*David*	6 34	5 26	7 s 23	) ſets	1
2	E	Quinq. or Shrove S. *Chad*	32	28	0	6 a 25	2
3	M		30	30	6 37	7 46	3
4	Tu	Shrove Tueſday	28	32	14	9 8	4
5	W	Aſh Wedneſday, Lent be.	26	34	5 50	10 29	5
6	Th		24	36	27	11 42	6
7	F	*Perpetua*	22	38	4	morn	7
8	S		20	40	4 40	0 51	8
9	E	Quadr. or 1 Sun. in Lent	18	42	17	1 55	9
10	M		16	44	3 54	2 50	10
11	Tu		14	46	30	3 38	11
12	W	Ember Week *Gregory*	12	48	6	4 19	12
13	Th		10	50	2 43	4 54	13
14	F		8	52	19	5 23	14
15	S		6	54	1 56	5 48	15
16	E	2 Sunday in Lent	4	56	32	) riſes	F
17	M	*St. Patrick*	2	58	8	6 a 52	17
18	Tu	*Edward K. of Weſt Saxons*	0 6	0 0	44	7 56	18
19	W		5 58	2	21	9 1	19
20	Th		56	4	n 3	10 7	20
21	F	*Benedict*	54	6	27	11 11	21
22	S		52	8	50	morn	22
23	E	3 Sunday in Lent	50	10	1 14	0 17	23
24	M		48	12	37	1 17	24
25	Tu	Annunciation, Lady Day	46	14	2 1	2 15	25
26	W		44	16	24	3 6	26
27	Th		42	18	48	3 48	27
28	F		40	20	3 11	4 28	28
29	S		39	21	35	5 1	29
30	E	4th or Midlent Sunday	37	23	58	5 32	30
31	M		36	25	4 21	6 1	N

Days	L. of D.	Day Inc.	D. breaks	Tw. ends	Sun Eaſt	Cl. bef. S.	7 Stars So.
1	10 52	3 8	4 43	7 17	5 36	12' 36"	4 a 43
6	11 12	28	32	28	42	11 29	25
11	32	48	21	39	48	10 11	7
16	52	4 8	11	49	55	8 45	3 48
21	12 12	28	0	8 0	6 1	7 15	30
26	32	48	3 48	12	7	5 42	12

First Quarter,	7th,	21m. past	5 morn.
Full Moon,	15th,	6m. past	10 morn.
Last Quarter,	23d,	12m. bef.	1 morn.
New Moon,	29th,	59m. past	3 aftern.

Sun enters ♉
19d. 9h. 49m.

1	Tu			5	33	6	27	4n44	☽ sets	1
2	W				31		29	5 7	9 a 24	2
3	Th	Richard Bp. of Chichester			29		31	30	10 42	3
4	F	St. Ambrose			27		33	53	11 50	4
5	S	Old Lady Day			25		35	6 16	morn	5
6	E	5 Sunday in Lent			23		37	39	0 52	6
7	M				21		39	7 1	1 44	7
8	Tu				19		41	24	2 27	8
9	W				17		43	46	3 4	9
10	Th				15		45	8 8	3 35	10
11	F	Cam. Term ends			13		47	30	4 1	11
12	S	Oxf. Term ends			11		49	52	4 26	12
13	E	6 Sun. L. or Palm Sunday			9		51	9 14	4 48	13
14	M				7		53	35	5 8	14
15	Tu				5		55	57	☽ rises	F
16	W				4		56	10 18	8 a 5	16
17	Th	Maundy Thursday			2		58	39	9 12	17
18	F	Good Friday			0	7	0	11 0	10 18	18
19	S	Alphege		4	58		2	21	11 19	19
20	E	Easter Day			56		4	41	morn	20
21	M	Easter Monday			54		6	12 1	0 18	21
22	Tu	Easter Tuesday			52		8	22	1 11	22
23	W	St. George			50		10	42	1 56	23
24	Th				49		11	13 1	2 34	24
25	F	St. Mark. Prs. M. b. 1776.			47		13	21	3 8	25
26	S				45		15	40	3 39	26
27	E	1 S. aft. East. Low Sun.			43		17	59	4 7	27
28	M				41		19	14 18	4 34	28
29	Tu				40		20	37	☽ sets	N
30	W	Oxf. and Cam. T. begins			38		22	55	8 a 20	1

Days	L. of D.		Day Inc.		D. breaks		Tw. ends		Sun East		Cl. bef. S.		7 Stars So.	
1	12	54	5	10	3	32	8	28	6	15	3'	51"	2 a	50
6	13	14		30		20		40		21	2	22		32
11		34		50		7		53		27	0	57		13
16		52	6	8	2	53	9	7		33	0 a 21		1	55
21	14	12		28		39		21		39	1	29		36
26		30		46		23		37		44	2	25		17

First Quarter, 6th, 37m. paſt 9 night.		
Full Moon, 15th, 19m. bef. 1 morn.	Sun enters ♊	
Laſt Quarter, 22d, 24m. paſt 7 morn.	20d. 10h. 24m.	
New Moon, 29 h, 24m. bef. 1 morn.		

1	Th	St. Philip and James	4 36	7 24	15 n 13	9 a 36	2
2	F		34	26	31	10 45	3
3	S	*Invention of Croſs*	33	27	49	11 42	4
4	E	2 Sunday after Eaſter	31	29	16 6	morn	5
5	M	Eaſter Term 1 return	29	31	24	0 30	6
6	Tu	*John Evan. ante Port L.*	27	33	40	1 10	7
7	W	Eaſter Term begins	26	34	57	1 43	8
8	Th		24	36	17 13	2 10	9
9	F		23	37	29	2 35	10
10	S		21	39	45	2 57	11
11	E	3 Sunday after Eaſter	19	41	18 0	3 18	12
12	M	*Old May D.* Eaſt. T. 2 re.	18	42	15	3 40	13
13	Tu		16	44	30	4 2	14
14	W		15	45	45	4 26	15
15	Th		13	47	59	D riſes	F
16	F		12	48	19 13	9 a 15	17
17	S		10	50	26	10 17	18
18	E	4 Sunday after Eaſter	9	51	40	11 14	19
19	M	Qu. Char. b. *Dunſtan.* E.	8	52	52	11 59	20
20	Tu	[T. 3 re.	6	54	20 5	morn	21
21	W		5	55	17	0 39	22
22	Th	Prs. Elizabeth born	4	56	29	1 14	23
23	F		2	58	41	1 43	24
24	S		1	59	52	2 10	25
25	E	5 or Rogation Sunday	0 8	0	21 2	2 38	26
26	M	*Aug. Abp. Can* Ea.T.4 re.	3 59	1	13	3 5	27
27	Tu	*Venerable Bede*	58	2	23	3 33	28
28	W		57	3	33	3 58	29
29	Th	Aſcenſion. K. Ch. II. reſt.	55	5	42	D ſets	N
30	F		54	6	51	9 a 27	1
31	S		53	7	22 0	10 22	2

Days	L. of D.	Day Inc.	D.breaks	Tw. ends	Sun Eaſt	Cl. aft. S.	7 Stars So.
1	14 48	7 4	2 7	9 55	6 50	3' 9"	0 a 58
6	15 6	22	1 50	10 12	55	40	39
11	22	38	30	32	7 0	57	20
16	36	52	6	57	4 0	0
21	50	8 6	0 30	11 40	8	3 48	11 m 41
26	16 2	18	No real Night		12	22	21

First Quarter,	5th, 54m. paſt 2 aftern.	
Full Moon,	13th, 38m. paſt 0 noon.	Sun enters ♋
Laſt Quarter,	20th, 10m. paſt 0 noon.	20d. 19h. 6m.
New Moon,	27th, 16m. paſt 10 morn.	

1	E	S. a. Aſce. Nico:Ca.ſ.d.n.	3	52	8	8	22n 8	11 a 5	3
2	M	Eaſter Term ends		52		8	16	11 41	4
3	Tu			51		9	23	morn	5
4	W	King Geo. III. b. 1738		50		10	30	0 12	6
5	Th	Pr. Erneſt Augu. b. 1771		49		11	37	0 38	7
6	F	[Bonif. ☉rſ. T.e.		48		12	43	1 0	8
7	S			48		12	49	1 22	9
8	E	Whit Sunday		47		13	54	1 42	10
9	M	Whit Monday		46		14	59	2 4	11
10	Tu	Whit Tueſday		46		14	23 4	2 27	12
11	W	St. Barnabas. Ember We.		45		15	8	2 54	13
12	Th			45		15	12	3 24	14
13	F			44		16	15	☽ riſes	F
14	S			44		16	18	9 a 3	16
15	E	Trinity Sunday		44		16	21	9 53	17
16	M	Trinity Term 1 return		44		16	23	10 37	18
17	Tu	St. Alban					25	11 14	19
18	W	☉rſ. Term begins					26	11 44	20
19	Th	Corpus Chriſti					27	morn	21
20	F	Tra.Ed.K.W.S. Tri.T.b.					28	0 12	22
21	S	Longeſt Day					28	0 38	23
22	E	1 Sunday after Trinity					28	1 3	24
23	M	Trin. Term 2 return					27	1 31	25
24	Tu	Na.of St.J.Bapt. Midſ. D.					26	2 1	26
25	W			43		17	24	2 34	27
26	Th			44		16	22	3 11	28
27	F			44		16	20	☽ ſets	N
28	S			44		16	17	8 a 56	1
29	E	2 Sun. af. Trin. St. Peter		45		15	14	9 34	2
30	M	Trinity Term 3 return		45		15	10	10 8	3

Longeſt Day at Lond. is 16h. 34m. 4ſec.   allowing 9m. 16 ſec. for refraction.

Days	L. of D.		Day Inc.		D.breaks	Tw. ends	Sun Eaſt		Cl. aft. S.		7 Stars So.	
1	16	16	8	32			7	16	2'	36"	10 m	56
6		24		40	No real night, but			18	1	46		36
11		30		46	conſtant day			19	0	49		16
16		32		48	or twilight.			20	0 b	13	9	55
21		34		50				20	1	17		34
26		32	odec. 2					20	2	22		14

First Quarter,	5th,	14m. paſt	8 morn.	
Full Moon,	12th,	35m. paſt	10 night.	Sun enters ♌
Laſt Quarter,	19th,	33m. paſt	4 aftern.	22d. 5h. 57m.
New Moon,	26th,	3m. paſt	10 night.	

1	Tu	Cambridge Commencem.	3 46	8 14	23 n 6	10 a 35			4
2	W	*Viſitation of Virgin Mary*	46	14	2	10 59			5
3	Th	Dog Days begin	47	13	22 57	11 21			6
4	F	*Tra. of St. Mar.* Cam. T. e.	47	13	52	11 42			7
5	S	*Old Midſummer day*	48	12	46	morn			8
6	E	**3 Sunday after Trinity**	49	11	40	0 3			9
7	M	*Tho. à Bec.* Trin. T. 4 re.	49	11	34	0 24			10
8	Tu		50	10	27	0 48			11
9	W	Trinity Term ends	51	9	20	1 18			12
10	Th		52	8	13	1 52			13
11	F		53	7	5	2 33			14
12	S		54	6	21 56	D riſes			F
13	E	**4 Sunday after Trinity**	55	5	48	8 a 28			16
14	M	Orford Act	56	4	39	9 5			17
15	Tu	*Swithin*	57	3	29	9 42			18
16	W		58	2	19	10 12			19
17	Th		59	1	9	10 38			20
18	F		4 0	0	20 59	11 3			21
19	S	Orf. Term ends	1	7 59	48	11 31			22
20	E	**5 Sun. af. Tr.** *Margaret*	3	57	37	11 59			23
21	M		4	56	25	morn			24
22	Tu	*Magdalen*	5	55	13	0 31			25
23	W		7	53	1	1 8			26
24	Th		8	52	19 48	1 52			27
25	F	**St. James**	9	51	36	2 42			28
26	S	*St. Anne Mo. of the V. M.*	11	49	22	D ſets			N
27	E	**6 Sunday after Trinity**	12	48	9	8 a 5			1
28	M		14	46	18 55	8 36			2
29	Tu		15	45	41	9 0			3
30	W		17	43	26	9 24			4
31	Th		18	42	11	9 45			5

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun Eaſt	Cl. bef. S.	7 Stars So.
1	16 28	0 6			7 19	3' 23"	8 m 53
6	22	12			18	4 17	33
11	14	20	No real Night		16	5 1	12
16	4	30			13	35	7 52
21	15 52	42			9	56	32
26	38	56	0 48	11 8	5	6 4	12

First Quarter,	4th,	5m. bef.	1 morn.	
Full Moon,	11th,	24m. paſt	7 morn.	Sun enters ♍
Laſt Quarter,	17th,	13m. paſt	10 night.	22d. 12h. 19m.
New Moon,	25th,	23m. paſt	0 noon.	

1	F	Lammas Day	4	20	7 40	17 ♍ 56	10 a 6	6
2	S			21	39	41	10 27	7
3	E	7 Sunday after Trinity		23	37	25	10 49	8
4	M			24	36	9	11 16	9
5	Tu			26	34	16 53	11 47	10
6	W	Transfiguration of our Lord		28	32	37	morn	11
7	Th	Prs. Ame. b. Na. of Jesus		29	31	20	0 24	12
8	F			31	29	3	1 10	13
9	S			33	27	15 45	2 7	14
10	E	8 S. a. Tri. St. Laurence		35	25	28	3 13	15
11	M	Prs. Brunſ. b. Dog Da. e.		36	24	10	☾ riſes	F
12	Tu	Pr. Wales b. O. Lam. day		38	22	14 52	8 a 17	17
13	W			40	20	34	8 42	18
14	Th			42	18	15	9 8	19
15	F	Aſſumption of V. M.		43	17	13 57	9 36	20
16	S	Duke of York born 1763		45	15	38	10 5	21
17	E	9 Sunday after Trinity		47	13	18	10 36	22
18	M			49	11	12 59	11 12	23
19	Tu			50	10	39	11 54	24
20	W			52	8	20	morn	25
21	Th	Duke of Clarence b. 1765		54	6	0	0 41	26
22	F			56	4	11 39	1 35	27
23	S			58	2	19	2 36	28
24	E	10 Sun. a. Tri. St. Bartho.	5	0	0	10 59	3 39	29
25	M			2	6 58	38	☾ ſets	N
26	Tu			3	57	17	7 a 32	1
27	W			5	55	9 56	7 54	2
28	Th	St. Auguſtine		7	53	35	8 15	3
29	F	St. J. Baptiſt beheaded		9	51	13	8 36	4
30	S			11	49	8 52	8 58	5
31	E	11 Sunday after Trinity		13	47	30	9 22	6

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun Eaſt	Cl. bef. S.	7 Stars So
1	15 20	1 14	1 23	10 36	7 0	5' 54"	6 m 48
6	4	30	43	15	6 55	28	29
11	14 48	46	2 1	9 57	50	4 47	10
16	30	2 4	18	40	45	3 52	5 51
21	12	22	34	25	39	2 46	32
26	13 54	40	49	10	34	1 28	14

First Quarter, 2d, 28m. past 4 aftern.	
Full Moon, 9th, 51m. past 3 aftern.	Sun enters ♎
Last Quarter, 16th, 40m. past 6 morn.	22d. 8h. 48m.
New Moon, 24th, 54m. past 4 morn.	☽

1	M	Giles	5 15	6 45	8n 8	9 a 51	7
2	Tu	London burnt 1666	17	43	7 46	10 25	8
3	W		19	41	24	11 6	9
4	Th		21	39	2	11 57	10
5	F		23	37	6 40	morn	11
6	S		24	36	17	0 58	12
7	E	12 S. af. Trin. Enurchus	26	34	5 55	2 7	13
8	M	Nativity of Virgin Mary	28	32	32	3 20	14
9	Tu		30	30	10	☽ rises	F
10	W		32	28	4 47	7 a 16	16
11	Th		34	26	24	7 45	17
12	F		36	24	1	8 14	18
13	S		38	22	3 38	8 44	19
14	E	13 Sun. af. Tri. Holy-Cross	40	20	15	9 20	20
15	M		42	18	2 52	10 0	21
16	Tu		44	16	29	10 46	22
17	W	Ember Week Lambert	46	14	5	11 38	23
18	Th		48	12	1 42	morn	24
19	F		50	10	19	0 37	25
20	S		52	8	0 55	1 39	26
21	E	14 S. a. Tri. St. Matthew	54	6	32	2 43	27
22	M	King Geo. III. crowned	56	4	9	3 48	28
23	Tu		58	2	0s 15	4 56	29
24	W		6 0	0	38	☽ sets	N
25	Th	Old Holy Rood	2	5 58	1 2	6 a 50	1
26	F	St. Cyprian	3	57	25	7 13	2
27	S		5	55	49	7 36	3
28	E	15 Sunday after Trin.	7	53	2 12	8 2	4
29	M	St. Michael. Prs. Royal b.	9	51	35	8 32	5
30	Tu	St. Jerome	11	49	59	9 11	6

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun East	Cl. aft. S.	7 Stars So.
1	13 30	3 4	3 6	8 53	6 27	0' 19"	4 m 52
6	12	22	20	39	21	1 56	34
11	12 52	42	33	25	14	3 38	16
16	32	4 2	44	15	8	5 23	3 58
21	12	22	55	4	2	7 7	41
26	11 54	40	4 6	7 52	5 56	8 49	23

First Quarter,	2d, 33m. past 6 morn.	
Full Moon,	8th, 29m. past 12 night.	Sun enters ♏
Last Quarter,	15th, 0m. past 7 night.	22d. 16h. 46m.
New Moon,	23d, 38m. past 10 night.	
First Quarter,	31st, 47m. past 6 aftern.	

Day		Event					
1	W	Remigius	6 13	5 47	3 s 22	9 a 56	7
2	Th		15	45	45	10 50	8
3	F		17	43	4 9	11 55	9
4	S		19	41	32	morn	10
5	E	16 Sunday after Trinity	21	39	55	1 6	11
6	M	Faith	23	37	5 18	2 24	12
7	Tu		25	35	41	3 46	13
8	W		27	33	6 4	D rises	F
9	Th	St. Denys	29	31	27	6 a 17	15
10	F	Ort. and Ca. T.b. O. Mic.	31	29	50	6 48	16
11	S	[day	33	27	7 12	7 23	17
12	E	17 Sunday after Trinity	35	25	35	8 2	18
13	M	Trans. K. Edw. Confessor	37	23	58	8 46	19
14	Tu		39	21	8 20	9 38	20
15	W		41	19	42	10 37	21
16	Th		43	17	9 4	11 38	22
17	F	Etheldred	44	16	26	morn	23
18	S	St. Luke	46	14	48	0 41	24
19	E	18 Sunday after Trinity	48	12	10 10	1 47	25
20	M		50	10	32	2 51	26
21	Tu		52	8	53	3 55	27
22	W		54	6	11 14	4 59	28
23	Th		56	4	35	D sets	N
24	F		58	2	56	5 a 46	1
25	S	K. Geo. III. Accef. Crisp	7 0	0	12 17	6 11	2
26	E	19 S. af. T. K. Geo. III. Pro.	2	4 58	38	6 39	3
27	M		3	58	58	7 16	4
28	Tu	St. Simon and Jude	5	57	13 18	7 57	5
29	W		7	55	38	8 47	6
30	Th		9	51	58	9 46	7
31	F		11	49	14 17	10 53	8

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun East	Cl. aft. S.	7 Stars So.
1	11 34	5 0	4 18	7 42	5 50	10' 27"	3 m 5
6	14	20	29	31	44	11 57	2 47
11	10 54	40	39	21	37	13 18	28
16	34	6 0	49	11	31	14 26	9
21	16	18	58	1	25	15 18	1 51
26	9 56	38	5 7	6 52	10	54	30

Full Moon,	7th, 55m. past 9 morn.	
Last Quarter,	14th, 28m. past 11 morn.	Sun enters ♐
New Moon,	22d, 19m. past 4 aftern.	21d. 13h. 1m.
First Quarter,	30th, 59m. past 4 morn.	

1	S	**All Saints** [*All Souls*]	7	13	4 47	14 s 37	morn	9
2	E	20 S. af. Tri. Pr. Edw. b.		14	46	56	0 6	10
3	M	Prs. Sophia b. Mic. T. 1 re.		16	44	15 14	1 21	11
4	Tu	King William landed		18	42	33	2 41	12
5	W	Powder Plot, 1605		20	40	51	4 6	13
6	Th	*Leonard*. Mich. Term b.		21	39	16 9	5 30	14
7	F			23	37	27	☽ rises	F
8	S	Prs. Aug. Sophia b. 1768		25	35	44	5 a 54	16
9	E	21 S. af. Tr. Ld. May. Day		26	34	17 2	6 36	17
10	M			28	32	18	7 28	18
11	Tu	*St. Martin*		30	30	35	8 24	19
12	W	Ca. T. div. m. Mic. T. 2 re.		32	28	51	9 25	20
13	Th	*Britius*		33	27	18 7	10 30	21
14	F			35	25	23	11 35	22
15	S	*Machutus*		36	24	38	morn	23
16	E	22 Sunday after Trinity		38	22	53	0 40	24
17	M	*Hugh Bp. of Lincoln*		39	21	19 8	1 44	25
18	Tu	Mich. Term 3 return		41	19	22	2 48	26
19	W			42	18	36	3 51	27
20	Th	*Edmund K. & Mart.*		44	16	50	4 55	28
21	F			45	15	20 3	6 1	29
22	S	*Cæcilia*. Old Mart. day		46	14	16	☽ sets	N
23	E	23 S. aft. Trin. *St. Clement*		48	12	29	5 a 33	1
24	M			49	11	41	5 52	2
25	Tu	D. Glou. b. *Cath*. Mic. T.		50	10	53	6 39	3
26	W	[4 re.		52	8	21 4	7 35	4
27	Th			53	7	15	8 39	5
28	F	Mich. Term ends		54	6	25	9 48	6
29	S			55	5	36	11 3	7
30	E	Advent Sun. St. Andrew		56	4	45	morn	8

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun East	Cl. aft. S.	7 Stars So.
1	9 34	7 0	5 17	6 43	5 13	16' 13"	1 m 9
6	18	16	23	37	7	8	0 49
11	0	34	30	30	2	15 41	29
16	8 44	50	36	24	4 57	14 53	8
21	30	8 4	42	18	53	13 41	11 a 43
26	16	18	48	12	49	12 15	33

Full Moon,	6th,	44m. paſt	8 night.	
Laſt Quarter,	14th,	19m. paſt	7 morn.	Sun enters ♑
New Moon,	22d,	4m. paſt	9 morn.	21d. 1h. 23m.
Firſt Quarter,	29th,	25m. paſt	1 aftern.	

1	M		7	57	4	3	21s55	0 m18	9
2	Tu			58		2	22 4	1 36	10
3	W			59		1	12	2 57	11
4	Th		8	0		0	20	4 18	12
5	F			1	3	59	28	5 39	13
6	S	Nicholas		2		58	35	☽ riſes	F
7	E	2 Sunday in Advent		3		57	42	5 a 2	15
8	M	Conception of Virgin Mary		3		57	48	5 56	16
9	Tu			4		56	54	6 57	17
10	W			4		56	59	8 2	18
11	Th			5		55	23 4	9 8	19
12	F			6		54	9	10 15	20
13	S	Lucy		6		54	13	11 20	21
14	E	3 Sunday in Advent		6		54	16	morn	22
15	M			7		53	19	0 24	23
16	Tu	O. Sapient. Cam. Term e.		7		53	22	1 28	24
17	W	Ember Week Orf. T. e.		7		53	24	2 31	25
18	Th						26	3 35	26
19	F						27	4 40	27
20	S						28	5 45	28
21	E	4 S. in Advent St. Thomas.					28	6 49	29
22	M	[Shorteſt Day					28	☽ ſets	N
23	Tu						27	5 a 14	1
24	W			8		52	26	6 17	2
25	Th	Chriſtmas Day		7		53	24	7 26	3
26	F	St. Stephen		7		53	22	8 40	4
27	S	St. John		7		53	20	9 56	5
28	E	1 S. af. Chriſt. Innocents		6		54	16	11 12	6
29	M			6		54	13	morn	7
30	Tu			6		54	9	0 29	8
31	W	Silveſter		5		55	5	1 47	9

Shorteſt D. at Lond. is 7h. 44m. 17ſ. allowing 9m. 5ſ. for refraction.

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun Eaſt	Cl. aft. S.	7 Stars So.
1	8 6	8 28	5 54	6 6	4 46	10' 28"	11 a 1
6	7 56	38	57	3	43	8 26	10 39
11	50	44	59	1	41	6 11	17
16	46	48	6 0	0	40	3 47	9 55
21	44	50	1	5 59	40	1 17	33
26	46	oinc.2	0	6 0	40	1b. 13	11

CHRONOLOGICAL NOTES, &c. in 1794.

Dominical Letter	E	Roman Indiction	12	Easter Day	Apr. 20
Golden Number	9	Septuage. Sun.	Feb. 16	Ascension Day	May 29
Epact -	28	Shrove Sunday	Mar. 2	Whit-Sunday	June 8
Cycle of the Sun	11	Lent begins	Mar. 5	Advent-Sun.	Nov. 30

ECLIPSES, &c.

THERE will be six eclipses in the course of this year, four of the Sun, and two of the Moon, and one of each of these will be visible in this country.

I. JAN. 31, the Sun is eclipsed, and visible here. It begins, at Greenwich, at 10h. 56m. morn. and ends at 33min. afternoon. Digits eclipsed 2º 49'.—II. FEB. 14, the Moon is visibly eclipsed, and total. Begins 8h. 7m.; beginning of total darkness 9h. 12min.; middle of eclipse 10h. 5m.; end of total darkness 10h. 58m.; and end of the eclipse 12h. 4m. at night. Digits eclipsed 21º 12'.—III. MARCH 1, the Sun is eclipsed, but invisible here, about 9h. 54m. at night.—IV. JULY 26, the Sun is eclipsed, but invisible here, about 10h. 3m. at night.—V. AUGUST 11, the Moon is totally eclipsed, but invisibly here. Begins 5h. 36m. and ends 9h. 11m. in the morning. Digits eclipsed 20º 33'.—VI. AUGUST 25, the Sun is eclipsed, invisible, about 23m. past noon.

VENUS is a morning star till March 19; then an evening star to the end.
JUPITER is a morning star till June 19; then an evening star to the end.

ANSWERS to the ENIGMAS.

1 Echo	6 Noon	*Suppl. Enigmas.*	5 Murder
2 Enigma	7 Shuttle	1 King at Chess	6 Genius
3 Coffin	8 Ring	2 Oak	7 Hand
4 Pump	9 Merry Andrew	3 Candle	8 *or Pr.* Theatre
5 Hat	10 *or Fr.* Old Maid	4 Slate Pencil	

Answers *to the* Prize Enigma.

1. *By Mrs.* F. C. *of North Shields, Northumberland.*

Tho' oft to Strephon I've said no,
Yet with him to church I'll go,
Rather than *lead apes below.*

2. *By Miss* Nanny Dent, *of Osmanflat.*

Young Hodge his dear Dolly of late went to see,
Intending to marry if she would agree;
She thought it imprudent to give her consent,
So Hodge from her presence immediately went;
And as he was going thus peevishly said,
" I wish from my heart she may die an *Old Maid.*"

3. *Ths*

III. *The same answered by an* Old Maid.

No, no, uncle no,
Should I lead apes below;
'Twill but be to the gate,
Where the Devil doth wait,
And to him I shall give up my charge.

Then mounting up high,
To St. Peter I'll fly,
There merrily join,
With bachelors fine,
In a laugh at the witlings at large.

4. *Address to Lady Di : by Mr.* Philip Norris.

Hail faireft Di! my humble lays attend,
Which I enrapur'd offer at your fhrine;
In hopes you'll deign, and kindly condefcend,
To place my labours in your page divine.
Altho' a ftranger I, and yet unknown
To you and fame,—yet confcious of your worth,
I thus prefume t'approach your matchlefs throne,
To folve the prize, and give an *Old Maid* birth.

5. *The fame, by Mifs* Thorpe, *of York.*

Grant me, ye powers, a friend with fenfe refin'd,
And, greater merit ftill,—an honeft mind.
Be fuch the man, if e'er I'm made a wife;
Or keep me happy in a *fingle life.*

6. *A Sonnet, addreffed to Mifs* Harpur, *by* Vertigo.

I've laugh'd, 'tis true, at Cytherea's fmiles;
Her dear delufive charms, and circling wiles;
Her boy derided, fcorn'd his " air-drawn" dart;
But by that dart, fhot from Louifa's eye,
Lo! a fad victim, on the ground, I lie!
Extract it, oh! extract it from my heart!
And with thine eye, Louifa, heal the fmart.
Ah! look'ft thou on my pallid cheek with fcorn,
Ah! turn'ft thou from me wretched and forlorn!
Then hear this truth, ere my fad eye-lids clofe,
   Tho' there, all lovely, in your charms, you ftand,
Yet, foon fhall fhrink that lily,—fade that rofe,
   And then what fwain will kneel to kifs your hand,
Or in his arms the *wither'd maid* enclofe?

Other feparate anfwers to the Prize Enigma, befides thofe inferted in the Supplement, were given by the following Ladies and Gentlemen: Aimwell, W. Anderfon, James Ayres, Job Ayres, Geo. Biggs, Wm. Bofwell, Betty Boys, Wm. Charles, Chimes, B. Cleypole, W. W. Crowle, Rob. Cundall, jun. Cha. Dare, G. Davies, Rd Dening, James Dick, Tho. Elmer, John Fildes, John Fowler, Mrs. M. Furnafs, Rob. Hendy, jun. Tho. Hornby, M. Idmon, Impromptu, John Liddell, Alethea Wilhelmina Maken, Betty Maun, Tho. Nield, John Nuttall, Oedipus, Old Maid, John Rimmer, Dav. Robarts, Alex Rowe, P. Rufher, J. Schofield, Senex, John Tweddle, J. Weftcott, Rob. Wilkinfon, Mifs A. Wood, and Thomas Woolfton.

GENERAL ANSWERS *to the* ENIGMAS.

1. *All the* ENIGMAS *answered by Master* Billy Beardless.

Sweet *Echo* resounds from the woodlands and vales,   1
    When the hounds are in view of the hare,
See the school-boy in raptures leap over the rails,
    Resolv'd in such pleasures to share.

Without *Hat*, before *Noon*, to the *Pump* they repair   5, 6, 4
    All perspiring and panting for breath,
To drink the cool stream, and comb out their hair,
    And make the yard *Ring* with her *Death*.   8, 3

Like *Mountebanks* nimble their horses they quit
    And swift as the *Shuttle* they fly,
Then drain the sweet orange, and socially sit,
    Till puss is dish'd-up, and brought nigh.

At Wantage to Woolston we'll push the glass round,
    Ere moon-light or candles appear,
Then haste to those scenes where no *Old Maid* is crown'd,   10
    And partake the gay sports with the fair.

Three ladies as fair as the snow-drop are seen,
    Tho' their minds like dark *Riddles* be found;   2
O may she prove constant, my heart's charming queen,
    And inspire all with joy that surround.

2. *The* HAPPY SHEPHERDESS, *by Miss* Betty Boys.

While in Stainton-vale I dwell,
Let me all my dainties tell;
Rise my muse, exalt my verse,
While my pleasures I rehearse.
When bright sol illumes the morn,
I myself then quick adorn,
Tye my *Hat* fast on my head,
Least I loose it in the mead;
Take my dog, my pipe and crook,
Trip it to Ag'nippe's *brook*,
Where my lambkins all around,
Frisk it o'er the flow'ry ground;
There within the grot I stay,
Tending them the passing day;
See how they in couplets prance,
Like *Merry-Andrew* skip and dance,
Like a *Shuttle* to and fro,
Up the hills, then down they go;

Hear the linnet on the spray
Echo forth his tuneful lay,
And the blackbird chearful sing,
Hailing the return of *Spring*,
Till the dew begins to fall,
To the fold my flocks I call.
To my cot then I repair,
All its rustic sweets to share;
There the page of thy sweet muse,
Lady Di I oft peruse,
See how bards in mystic verse,
Enigmatic lays rehearse,
Mourn the hapless *Maiden's* fate,
Who finds her *Coffin* in that state.
Thus my time each fleeting *day*,
To my pleasure glides away;
Free from care, with plenty bless'd,
In calm content I go to rest.

3. *An excellent New Hunting Song, by* Chimes.

Let sluggards till *Noon*-tide lie snoring asleep,   6
    And ingloriously squander the morn;
We'll start when bright Phœbus begins first to peep,
    And join the brisk sound of the horn;

Then faddle your fteeds, for the chace let's prepare,
   Hafte, hafte! without further delay;
The morning's delightful, refrefhing the air,
   Tally ho! my brave boys, hark away.

Hark! the dogs in full cry, and Reynard's in view,
   'Tis a brufher, how fwiftly he flies!
But *Pumper* and *Riddler* his footfteps purfue,   4, 2
   And make the air *Ring* with their cries;   8
See, he enters the copfe, give your courfers the fpur,
   He's determin'd to fhew us fome play;
But fwift at his brufh is each mellow toned cur;
   Tally ho! my brave boys, hark away.

Like a *Shuttle* again from the covert he darts,   7
   And would fain to the river repair;
But now his ftrength fails, and in vain are his arts,
   He pants like *Old-Maids* in defpair.   10
See! *Merryman* has him, we're in at the *death*,   9, 3
   Then off with each *Hat* and huzza;   5
No pleafure's like hunting for mortals on earth,
   While *Echo* cries, hark! hark away.

4. *An Addrefs to Mr.* Ralph Burton *of* Salton, *by the Rev. Mr.*
Ewbank *of* Thornton Steward.

As you take both the Diary and Supplement too,
If I anfwer th' *Enigmas*, in either, 'twill do,   2
To put you in mind of a promife you made,
That, quick as a *Shuttle*, there fhould be convey'd   7
A letter to me, on a certain event;
And a *Coffin* to you will fuggeft what is meant.   3
In the *Pump-room* at Bath you've perhaps never been;   4
But, at Malton, I doubt not, *Buffoons* you have feen.   9
When you Jerveaux furvey'd, I oft walk'd after *Noon*,   6
To fee you at work; and I hope you'll come foon
The reft to complete, and I promife you, that
I will walk to the place, tho' I fweat thro' my *Hat*.   5
If Hornby comes with you, and wants an *Old-Maid*,   1*
I can help him to find one. No more need be faid;
The bells they fhall *Ring* (if a match we obtain)
Till the ruins of Jerveaux re-*Echo* the ftrain.

5. *Ode to Spring: by Mrs.* M. Furnafs, *of* Heddon-on-the-Wall,
near Newcaftle.

Now rofy morn impurples far
The eaftern tract of heaven's height;
The *fun*, triumphant in his car,
Appears in golden luftre bright.

Again blithe *Echo* glads the groves,
Refounding far the wood-lark's lays;
The mind's elate,—the fancy roves,
Thro' dark *Enigmas* hidden maze.

Now fylvan fcenes invite the fwain,
Now rural paftime cheers his mind;
With *Hat* in hand he quaffs amain
From purling ftreams the cryftal wine.

Or elfe with eager pace the *Maid*,
To cool her mafter's thirfty tongue,
Trips it along the funny glade,
With water from the *Pump* juft wrung.

Of *Buffoon*'s tricks and fairy tales,
Of ghoft and *Coffin* feen by night,
Of trav'llers wand'ring in the vales,
Miffed by globes of doubtful light.

No more we hear; for chang'd the fcene!
With dreary irkfome nights are fled;
Each vifion, and each frightful dream,
Each vain and wild terrific head.

Bring hither, love, my loome and line,
For thee I'll weave a muflin band:
I'll drive the *Shuttle* fwift and fine,
Nor mar the *Ring* that grac'd my hand.

Then join the dance upon the green,
Since joys, confummate joys now deign
To hail the fpring, prolific queen,
Emerging from ftern winter's reign.

6. *Midnight Stillnefs*, by Mr. Geo. Gibbs, *Jun.*

" The clock ftrikes twelve; o'er half the globe
Darknefs has fpread her pitchy robe."
The *Noon*-day fun, far in the weft,   6
Has funk; and nature feems to reft.
No noify fcenes fpoil contemplation,
As all is ftill throughout the nation:
No *Ringing* bell is heard to toll,   8
To tell of a departed foul;
No *Coffin* borne before the fight,   3
With weeping fons and mother by't;
No working *Pump* is heard to found,   4, 1
So ftill, fo folemn all around;
No injur'd ghoft is heard to talk,
No reftlefs fpirits feem to walk;
No antick *Andrew*, with a tale   9
Of cunning low, rough, old, and ftale;
No *Shuttle* fwift is feen to fly,   7
To weave the filk to pleafe the eye;
No *Hateful* fcenes, or fcenes of fport,   5
No dark *Enig.* with fancy wrote,   2
Where art with learning ftands difplay'd
In well concealing an *Old-Maid*,   10
Employs the world this folemn hour,
When Morpheus reigns in all his power.

7. *Early Morning's Contemplation*, by Mrs. H.

At rofy morning's early dawn,
Lightly tripping o'er the lawn,
While the grafs with verdant hue
Glift'n'd with the pearly dew,
Oft I've fought the valley free,
Lady Di to chat with thee;
Where foft *Echo* would repeat
Thy *Riddles* all in accents fweet;
How the *Maid* the *Shuttle* threw,
Or deck'd her *Hat* with heav'nly blue.
Or walk'd at *Noon* the *Pump* to fhare,

Or at the *Ring* to take the air;
Or how the *Merry Andrew*'s wit
Puts all the folks in merry fit.—
But hark! I hear a paffing bell,
Ah! who is gone? fweet Dia tell;
Alas! another friend laid low,
And his fad children mourn in woe,
Lament his lofs, his tender care;
But heav'n will guard the good and fair;
And in thy page his name fhall bloom,
And ftrew frefh laurels o'er his *tomb*.

8. *Advice to Youth, by* Jacobus, *of Norwich.*

Ah! see, how year on year revolves along,
  Like billows pressing on the seat-beat shore;
With haste each year drives the preceding one,
  And *that*, impell'd behind, impels before.   5

How swift flies time! the fleet hours pass away,
  Like as a weaver's *Shuttle* thro' the loom;   7
How short's the space allotted in this world,
  Before man sinks into the *silent tomb*.   *Cof.* 3.

Ye youths in *spring* of life, attention pay,   8
  Imbibe bright reason's precepts in your mind;
But of that *mimic* vice be sure beware,   9
  Or else she'll leave a pois'nous sting behind.

How hard to regulate the *springs* of life,   4
  When into some dark road you're led astray;
You therefore must with caution shun the path,
  And strive, ah strive to gain eternal day.

Should some c*Old Maid* your bosoms rack with pain,   1o
  With patience bear the sick, the rankling smart;
Nor let dark " clouds bedim your measur'd day,"
  But seek another truer, warmer heart.

Then be not sad, but in th*E chorus* join,   1
  With beaux and belles who ever love delight,
And may some happy union be your lot,
  Ere the *Noon*day is gone, and *veil'd in shades* of night.   6, 2

9. *Mrs.* Diana Mason, *on the late Death of her much lamented Father, Mr.* Francis Browne.

'Tis done! and the glad soul has wing'd her flight
From grief and gloom, to happiness and light.
His frame no more shall pain or sickness know,
For gentle *death* has clos'd the scene of woe.   3
No more shall racking pains assail his head,
For ah! he's number'd with the silent dead.
He's gone, he's gone, to meet those blest rewards,
All gracious heav'n to worth like his awards.
The kindest parent, and of friends the best;
The needy oft he help'd, but ne'er distress'd.
His mind by nature's hand was amply fraught;
Scholastic love by Bamfield was he taught;
Diaria's favourite, Tarratt, well he knew,
And oft from busy scenes of life withdrew,
To trace with him celestial wonders through.
No *empty* praise he anxious was to gain,   1
Save *that* which stands within this list of fame.   5
For Lady Di, *Enigma*s long he wrote,   2
Of *Merry Andrew, Shuttle, Noon,* or coat;   9, 7, 6
Sometimes on *Ring,* or *Pump* he'd shew his skill,   8, 4
E'en *Ancient Maids* could not escape his quill.—   10
                                                                            But

> But ſee Diarians, vain was worldly fame,
> When from above the awful mandate came;
> Vain was phyſician's aid, his children's prayers,
> Heaven ſaw 'twas good—ſo took him from his cares.

*** Mr. Francis Browne was the father of the three young ladies, our ingenious Correſpondents, mentioned in the Diary for 1792, of whom the writer of the above ſolution, formerly Miſs Diana Browne, was the oldeſt. Mr. Browne began his correſpondence in the Diary at 12 years of age, and continued it occaſionally till the time of his death, which happened in London on Dec. 11, 1792, in the 54th year of his age. His contributions were alſo occaſionally inſerted in other publications. But they were almoſt always made under other names or ſignatures, lately under that of *Francis Smith*, but formerly, and more commonly, under that of *Ben. Row*, being an anagram formed by tranſpoſing the letters of his ſurname (Browne), and under which title he had intended ſoon, had providence ſpared him a little longer, to have publiſhed an aſtronomical work, but which may perhaps hereafter be given to the public by his amiable and ingenious daughter Mrs. Maſon.

10. Reuben Rebus's *Addreſs to Miſs Suſan Browne.*

> From a ſtranger, dear Suſan, refuſe not the lay,
> Which your merit alone could induce him to pay;
> But with kindneſs attend, while his numbers impart,
> How your wit and good ſenſe have enraptur'd his heart.
> When Diaria her viſit commences each year,
> And with luſtre the names of her vot'ries appear,
> With joy ſee me open the page of renown,
> To fix my regard on the lines of Miſs Browne.
> When as dark as the grave where the *Coffins* remain,   3
> New *Enigmas* appear but to puzzle the brain;   2
> When I've *Pump*'d all my friends by whoſe favour and boon   4
> *Merry-Andrew* and *Shuttle* are as clear as the *Noon*;   9, 7, 6
> When with *Echo* and *Hat*, lo the *Ring* too appears,   1, 5, 8
> Which to Hymen ſo ſacred an *Old Maid* ne'er wears,   10
> With rapture I cry, when I've found out each name,
> Let the much-admir'd Suſan tranſmit them to fame.

11. *Petition to Lady Di, and Diarians, by Mr.* John Rimmer, *of Liverpool.*

> Ingenious friends of Diary, condeſcend,
> And deign a place unto a fervent friend;
> Who, though a ſtranger, and unlearn'd and young,
> Would willingly obtrude his humble ſong:
> As yet unſkill'd in *Enigmatic* art,   2
> Hoping indulgent aid you'll deign t' impart;
> And in thoſe ſcientific ſcenes where he
> In your bright company delights to be,
> If with benignant air, and ſmile-clad face,
> You'll grant him acceptation in this place,

With *Hat* in hand in grateful ſtrains I'll ſing,   5
Your kindneſs ſhall reſounding *Echo Ring*,   1, 8
In ev'ry vale, ti.l with fatigue I ſwoon,
Unable to ſupport the ſummer's *Noon*.   6
But when the placid eve again returns,
And ſcorching ray the plants no lon.er burns,
Then to ſome *Pump* as *Shuttle* ſwift I'll fly,   4, 7
Or to ſome ſtream to " tempt the finny fry"
To cool my wearied frame, frail nature chear,
Then chaunt your praiſe that all the world may hear.—
But if the nine, who o'er your works preſide,
Should frown upon me, and my ſuit deride ;
If, coy as *Maidens old*, they diſapprove,   10
Slight my beſt offer, diſregard my love ;
Then, like *Buffoon*, or fool or frantic turn,   9
My diſappointment ſhall for ever mourn,
Till in the *grave*, the wretch's laſt retreat,   3
I ſleep, in hopes a be.ter fate to meet.

Other ingenious anſwers to the Enigmas, beſides the above, and thoſe inſerted in the Supplement, were given by the following Ladies and Gentlemen, viz. Aimwell, Amincus, Appleton, James Ayres, Job Ayres, W. B, J. Bailey, Wm. Bell, Maria Caroline Bennet, L. Bowden, Tho. Bowman, J. Brookſbank, John Brown, Tho. Browne, John Burrow, John Cavil, Geo. Cook, Joſ Cox, W. W. Crowle, Joſ. Dawbney, Richard Dening, Tho. Elmer, J. Fildes, John Fowler, Tho. Giles, Frances Grain, M. H, Tho. Hornby, Tho. Jaques, M. Laidman, John Liddell, Alethea Wilhelmina Maken, Nancy Maſon, Tho. Nield, Phil. Norris, John Nuttall, Oedipus, Betſy, R. Alex. Rowe, P. Ruſher, John Savage, J. Schofield, Joſ. Scott, Wm. Sims, Wm. Tarmior, M. Thorpe, Geo. Webb, and J. Weſtcott.

Answers *to the* Rebuses *and* Charades.

| Rebuſes. | | | Charades. | |
Diary.	Sup.		Diary.	Sup.
1 Wantage,	1 Song,		1 Orange,	1 Scabbard,
2 Woolſton,	2 Carr,		2 Snowdrop,	2 Larkſpur,
3 Fildes,	3 Linden,		3 Schoolboy,	3 Nutmeg,
4 Pitt,	4 Brown.		4 Noonday,	4 Sign-poſt.

1. *The Rebuſes and Charades anſwered by Miſs* Nanny Dent, *of* Oſman Flat, *near Barnard Caſtle.*

If you, Britiſh fair, to my tale will attend,
I ſoon will diſcloſe what fair Dia has penn'd.
There's *Wantage*, and *Woolſton*, with *Fildes* and young *Pitt* ;
And I'll bet ten to one that the reſt I ſhall hit.
There's an *Orange* for *Schoolboys* that play at *Noonday*,
And *Snowdrops* for ladies that ſhine at the play.

2. *The ſame, by Mr.* J. Fildes, *Schoolmaſter, Liverpool.*

J. Fildes to the Editor humbly returns
Due thanks, for paſt favours receiv'd ;

His heart with the *Noonday* of gratitude burns,
  And joy that can scarce be conceiv'd.
No *Schoolboy* was e'er with an *Orange* more pleas'd,
  Or *Snowdrop*, than he with his prize;
He's glad too that *Jones* is at *Wantage* much prais'd,
  And thinks *Pitt* is as good as he's wife.

3. *The same, by Mr.* Geo. Gibbs, *jun.*

How oft in *age, Want* overtak's mankind;
Led on by pleasure, and to reason blind.
Passion they follow, like the *boy* at *School*,
Too late repenting, till he's play'd the fool.
Witness can *Woolston* bear, *Fildes* and *Pitt*,
How oft they've seen a wretched parent sit,
In ragged poverty, with grief opprest;
Like *Snowdrop* bended, and with want distrest.
No *Orange* sweet, no spices of the east;
The reveling, the banquet, and the feast
Are o'er; their *Noon* of life long since is past,
Asham'd to beg, want ends their *days* at last.

4. *The Spring; by Mrs.* Diana Mason.

Again the verdant spring appears,
And *Fields* and meads look gay;
The *Sunbeam* now the Snowdrop
  chears,
And *Schoolboys* gladful play.
The birds our fostring *Pittance* scorn,
Which late they chirping sought;

The *Orange* trees their flowers adorn,
In *Woolston*'s favorite walk.
But ah! to me the blooming grove
In vain displays its charms;
For he, with whom I us'd to rove,
Lies lock'd in death's cold arms.

5. *The same answered by* Oedipus.

Oh for a muse, my verse t'inspire,
  To aid my humble strain,
A *Fildes'* ease, a *Woolston*'s fire,
  T'immortalize my name.

The juicy *Orange* smiling face,
  The cheering *Noonday* sun,
The errant *Schoolboy*'s tardy pace,
  Or *Wantage*——lovely town.

The *Snowdrop* clad in lily'd vest,
  Prophetic of the spring,
Our happy isle with freedom blest,
  In lively notes I'd sing.

Its favour'd chief, great Chatham's
  Exalted to the skies,   [son,
Shou'd be the burden of my song,
  His praise immortal rise.

6. *The same, by Mr.* Tho. Smart, *of Burton on the Woulds.*

When sultry summer's *Noonday* heat
  Pervades the splendid air,
To *Orange* groves I oft retreat,
  Where sprang the *Snowdrop* fair.
Th'imprison'd *Schoolboy* now set free,
  Exulting runs to play,

And *Pitt* from noise and business he
  To *Wantage* bends his way.
Calmly I study Lady Di,
  Where *Fildes* and *Woolston*'s name
Enroll'd in her fair pages vie,
  And win immortal fame.

7. *The same, by* Mr. Wm. Wardley.

An *Orange* may a Schoolboy pleafe,
Or *Wantage* fuit friend Bayley's lays,
  I feek fublimer joys;
Let me with *Fildes* or *Woolfton* fing,
Of *Pitt* the fav'rite of his king,
  And Briton's deareft prize.

Not the mere whiftling of a name,
His merits fhall acquire fuch fame,
  As ever will endure,
In calumny and envy's fpite
Shining like faireft *Noonday* bright,
  And as the *Snowdrop* pure.

Other ingenious anfwers to the Rebufes and Charades were alfo given by Aim-well, Appleton, James Ayres, Job Ayres, W. B, J. Bayley, L. Bowden, Betty Boys, Tho. Browne, G. Burrow, Jno. Cavil, Wm. Charles, George Cook, Jof. Cox, W. W. Crowle, Jofeph Dawbney, Rd. Dening, Tho. Elmer, Rev. J. Ewbank, Jno. Fowler, M. H, Tho. Hornby, Jacobus, Tho. Jaques, Tho. Lee, John Liddall, Alethea Wilhelmina Maken, Nancy Mafon, Tho. Nield, Phil. Norris, John Nuttall, John Rimmer, Dan. Roberts, Alex. Rowe, P. Rufher, John Savage, Wm. Sims, Jof. Scott, J. Stainmore, A. T, Wm. Tarmior, M. Thorpe, Geo. Webb, and J. Weftcott.

ANSWERS *to the* QUERIES.

QUERY I. *anfwered by the Propofer,* Mr. John Dalton, *of Kendal.*

This phenomenon is only obferved when the air has fuffered a fudden change of temperature from heat to cold. It is found (from experience) that warm air will hold more water in folution with it than cold air ; therefore where the air is fuddenly cooled, which fometimes happens in an evening, the water being then much warmer than the air, it evaporates pretty copioufly at the furface, but is no fooner carried up a little into the cold air, than it is precipitated again in form of a mift, and occafions the phenomenon.

The fame, anfwered by Mr. J. Jackfon, *Hutton-Rudby School.*

Thefe mifts are watery vapours exhaled by the fun's rays during the day, from the rivers, meadows, &c. over which they are feen hovering in the evening, if it has been calm during that time; for by the abfence of the fun, in the evening, there wants a fufficient degree of heat in the atmof-phere to attenuate them and increafe their elafticity, and confequently their rarity. In confequence they defcend into the lower parts of the atmofphere in large and opaque particles, vifible themfelves to the eye, but obftructing the vifion of other objects through them ; and thus they appear for fome time both before and after the fun is fet, as it were balanced near the earth by the declining of the fun's rays ; but fome time after they lofe thefe, they condenfe and fall down in dew; or, if the air be frofty, in hoar froft.

The fame, anfwered by Mr. John Rutherford, *Pupil to Mr. Johnfon of Wearfhead, Weardale.*

Rivei and moift places, over which this phenomenon is obfervable, being heated by the action of the fun, an exhalation is occafioned, which during the day is diffolved by the air, and becomes invifible. When the fun is withdrawn, the warmth of the water for fome time continues, and con-

ſequently the evaporation which the air, that in the night turns moiſt and chill, is not able to diſſolve, it becomes viſible, and hovers above theſe places in the form of a miſt, but gradually ſinking as the water loſeth its heat, and commonly diſappears towards the morning.

QUERY II. *anſwered by Mrs.* Diana Maſon.

I have by me a very old book, which has the following account of Valentine being confined at Rome on account of his religion, and committed to the care of a man whoſe daughter was blind, whom Valentine reſtored to ſight, and from that time the girl became enamoured of him, nor did he treat her affection with contempt. But after a long impriſonment, he was ordered for public execution on the 14th of February.—While in priſon, being deprived of books, he uſed to amuſe himſelf with cutting curious devices in paper, on one of which he wrote ſome pious exhortations and aſſurances of love, and ſent to his keeper's daughter the morning of his execution ; and being concluded in the words, " Your Valentine," there is great reaſon for ſuppoſing that to be the origin of the preſent cuſtom.

The ſame, anſwered by Miſs Nancy Maſon, *of Clapham.*

I ſuppoſe the origin of Valentines was from one Valentine a prieſt, who lived in the third century, and who, upon his being diſappointed of a biſhopric, forſook the chriſtian faith. He publiſhed that there were 30 gods and goddeſſes, 15 of each ſex, whom he called *aones* or *ages*, and taught that our Saviour, like another Pandora, ſprung from their correſpondence, and farther affirmed that he paſſed through the Virgin Mary with a body he brought out of heaven, as through a pipe or conduit, and that all men ſhould not riſe again. His followers, who were unmarried, uſually met together on the 14th day of February each year, and each choſe one of the oppoſite ſex, who were to inſtruct and adviſe each other on religious and other affairs, during the following year.

The ſame, by Mr. John Nuttal, *Schoolmaſter, Bury.*

Valentine, who is commemorated on the 14th day of February, was a biſhop of Rome, and martyr. He lived in the 3rd century, and it is reported that he was a perſon of a very loving and charitable temper. In the Roman church the chuſing of ſaints or patrons for the enſuing year is at preſent celebrated on the above day, and it may be, that young men and maidens, after this example, chuſe their Valentines or loving friends on this day.—But ſome perſons are of opinion, that it had its origin from the obſervation of the birds, who chuſe their mates about this time of the year.

QUERY III. *anſwered by Mr.* James Ayres, *of Acklome.*

The inſcription on a guinea runs thus :

GEORGIUS III DEI GRATIA M.B.F. ET H. REX F.D.B. ET L.D.S.R. I. A. T. ET E.

That is, *Georgius tertius, Dei Gratiâ, Magnæ Britanniæ, Franciæ et Hiberniæ Rex, Fidi Defenſor, Brunſwicii et Lunenburgi Dux, Sacri Romani Imperii Archi-Theſaurarius et Elector.*

I.

In English, George the 3d, by the Grace of God, King of Great Britain, France, and Ireland, Defender of the Faith, Duke of Brunswick and Lunenburgh, Arch-Treasurer and Elector of the Holy Roman Empire.

Query IV. *answered.*

Upon the subject of this query there are various opinions, some in the affirmative, and some in the negative, and doubtful, or different according to circumstances; as in the following specimens.

1. *Miss* Alethea Wilhelmina Maken, *of Liverpool, says,*

If a female have a prepossession in favour of a suitor, and know that his intentions are truly honourable, I scruple not to give my vote in the affirmative, whatever sneers I may draw from the fastidious prudes. Evasive denials, and disrespectful answers must depreciate a woman in the esteem of a man of sense, who will consider her dissimulation and affected modesty as tokens of corrupt principles. But if the suitor be of an unfair character, a positive refusal is absolutely necessary. It is my sincere wish that people would deal with honesty and candour in love, for it is of too much moment to both sexes to be in jest about.

2. *Mr.* John Liddel, *of Hovingham, says,*

There is a peculiar delicacy, which appears to be an innate principle deeply implanted in the breast of the fair sex, by the influence of which a discreet young lady is in a great measure compelled to act upon the reserve at the first personal disclosure of her admirer's passion. Hence, though the lady may be very well satisfied with the gentleman's character, and even in love with his person, yet she is influenced by nature neither to comply with his solicitations, nor give him a flat negative; but rather to close the first interview with an apparent uncertainty of conquest on his part, and an undoubted persuasion on her own that he will soon renew his intreaties. This conduct seems to be both prudent and natural. But pardon me, ladies, if I press too much upon your delicacy, or be thought to pass any censure upon you; I am not giving advice unasked, but my opinion as required; far be it from me to dictate to the most perfect part of created nature; the impression of whose charms upon our hearts is no less instantaneous than irresistible.

New Enigmas.

I. Enigma 762, *by Miss* F. M. A.

Let poets who may
My beauties display,
I'm subject to change 'tis well known;
Their fancy may dwell,
On those that excel,
But never describe me alone.

Included in lays
That celebrate praise,
When lovers do sonnets compose,
Take rays of the morn,
The skies to adorn,
Or said to resemble the rose,

To

To mix me with white,
They oft may delight,
The lily that beautiful flower,
With me do compare,
Or give me a share,
In jessamine twin'd round the bower.

By all I'm possess'd,
And sometimes caress'd,
Admir'd in the sprightly fair maid,
It can't be deny'd,
I'm quite on one side,
Yet to beauty must still lend my aid.

II. Enigma 763, *by Mrs.* Hallilay.

Permit a science much admir'd,
 To greet Diaria's page;
And tho' in artful garb attir'd,
 To charm in ev'ry age.

Coeval with the world indeed,
 My pleasing echo's thrill'd;
As genius rose—with equal speed,
 My power new wonder fill'd.

Since I discordant wring the soul,
 Like lovers in a rage,
Who reconcile the mystic whole,
 And beauteous concord wage.

An useful doctor good at heart,
 As ancient bards pretend,
When venom strikes its pointed dart,
 I am the only friend.

With grave and gay, with young and
 Despotic rule the roast; [old,
With gods and goddess's foretold,
 I am the fav'rite boast.

No ball, no masquerade, or play,
 Without my aid resound;
In churches and cathedrals pay
 A tribute most profound.

When conquering wars invoke my
 With martial ardour brave, [power,
Proclaim each great victorious hour,
 And fly the silent grave.

Adieu!—but when to mortal race,
 " The blissful change is giv'n,"
With all beatitude and grace,
 Your servant reigns in heav'n.

III. Enigma 764, *by* Hilarius.

French fashions fly to gather fame
On British ground; from thence I
 came,
And, like most imports from that
 coast,
To please you, ladies, is my boast;
'Tho' aid to culinary art,
Nor grace to dress do I impart.
But since imported to this isle
A tedious hour I oft beguile.—
Three things are wanted to compleat

My varying form—take this receipt.
First chuse the substance to your
 mind,
Two crops compose it aptly join'd,
But then 'tis proper to be known
That each of them can stand alone.
Regard each part, employ your wit,
And shrewdly twine them 'till they fit:
Unite them, and the whole is made,
But grace it with a proper shade.

IV. Enigma 765, *by Mr.* Geo. Gibbs, *jun.*

Ye lovely fair! in neatness when array'd,
In all that grandeur, art, or fancy made,
Or when in flowing elegance you're dreft,
In me you oft appear; 'tis me you grace,
With all your breeding and with all your taste.
At festive holydays, and birth-day night,
You're found in me; in me you take delight,
To shew to lordly man your native graces,
And pleasing smiles in all those winning faces.
In scenes of lower life I'm frequent seen;
With playful boys I'm found upon the green,

When

When friends an umbrage take at one another,
This I can sooner settle than a brother.
'Tis I can settle the affairs of nations,
And others too, though high or low in stations.
If men thro' want, or whim, of life are tir'd,
'Tis I can lay them low, if I'm requir'd.
I'm inoffensive, yet offensive too;
When you were young I often play'd with you
At mirthful exercise; your time you spent,
Pleas'd with a little, and with me content.

V. Enigma 766, *by Mr.* Wm. Jones, *of Heyford.*

My parent once with verdure crown'd,
　Near partlet's cottage grew;
For cooling virtues far renown'd,
　And juice all-cheering too.

But oh! upon a luckless day,
　By steely weapons slain,
He soon became the victor's prey,
　And left the rural scene.

The chirping sparrow now no more,
　When autumn crowns the year,
Shall ever taste his luscious store,
　Or seek a covert there.

The truant youth with ardent zeal
　No more shall climb the fence;
No more the well-form'd engine peel,
　Or get artill'ry thence.

From his remains with ease bro't
　I trace my humble line;　[forth,
Or boast of more distinguish'd worth,
　When polish'd from the mine.

Now fix'd in bloody hands secure,
　I stray where horror reigns,
Where bleeding victims strew the
　And desolate the plains.　[floor,

Their naked limbs expos'd to view,
　I help to dress with art;
As erst I dress'd, if fame says true,
　Creation's loveliest part.

But these alas! inactive lie,
　The feet forget to move;
The pinion'd bird no more can fly,
　To seek the leafy grove.—

Now say, ye ever blooming fair,
　In whom soft pity shines,
What punishment the wretch shou'd
　Who after death confines. [share,

Methinks a tuneful voice replies,
　Which echoes thro' the plain;
Let foaming waves about him rise,
　And fire purge ev'ry stain.

VI. Enigma 767, *by Mr.* David Roberts, *St. Columb.*

Ye fair, a moment pray attend,
Unto a very faithful friend,
Who on you constantly does wait,
At morn, at night, both soon and late,
I no ways bashful am, nor shy,
But ever keep you company;
And in return you humour me,
And kindly take me on your knee.
In private you will me indulge;
But mind, no secrets I divulge.

Again, I am so very queer,
I scarce in public will appear;
But once I from concealment slipt,
When British beauties nimbly skipt
In festive dance, and people say,
A monarch more than usual gay
Took me, and made me known to
　fame;
Ye fair, from this you'll tell my name.

VII. Enigma 768, *by Mr.* Benj. Rogers, *Pickering.*

Great sol, thou ruler of the day,
Like thee I rise without delay,
　Until I reach my prime;

Tho' I don't pass the planets nodes,
Yet London and its antipodes
　I touch at the same time.

In ancient times it was unknown,
What power sufficient, cou'd alone,
   Draw me, by unseen force;
But Newton's penetrating mind,
The wondrous cause did truly find,
   By which I steer my course.

I only fall to rise again,
Like gales upon the briny main,
   Cause hope, or joy, or fear;
By observation 'tis well known,
My height does prove I truly own,
   Two seasons of the year.

From clime to clime I take my flight,
And never stop, by day or night,
   Unless my parent stand;
Who once, as sacred writings say,
Did at a certain time obey
   A mortal's strict command.

With me great riches are convey'd;
They pass and repass by my aid,
   And visit France or Spain;
Who for my coming does prepare;
But hold, my muse, I'm well aware,
   My name is told too plain.

VIII. ENIGMA 769, *by Mr.* John Savage, *Smithalong Grove.*

Lo when the wintry storms are flown,
And warbling choirs awake their
   tune,
When flowrets deck the fragrant
   grove,
And woodbines twine the gay alcove,
Soon as refulgent sol's gone down,
And am'rous couples leave the town,
Retiring to the myrtle bower,
To spend a friendly social hour,
I then, ye lovely fair, am seen,
In flow'ry mead or verdant green,
Or on the leafy towering hills,
Or by the gentle murm'ring rills,

Or in the lonely woods appear;
Look on the spreading tree, I'm there,
I'm not confin'd to mead or grove,
But thro' the spacious earth I rove,
In fenced gardens I am seen,
As oft as on the verdant green.——
While Luna darts her silver ray,
And Philomela tunes her lay,
In various places I am found,
On every house, or on the ground.
But when the radiant sun doth rise,
Triumphant from the orient skies,
I vanish like a fleeting shade,
From hill or valley, grove, or mead.

IX. ENIGMA 770, *by Mr.* Wm. Wardley.

Ladies deign t'observe a creature,
The most changeable in nature.
See me now of vermil hue,
The next moment green or blue,
And it's ten to one ere night
May be yellow, red, and white,
Every colour you descry
In the arched vault of sky.

   Gentle Damon, to despair
Driven, by some haughty fair,
E'en while I relate my tale,
Deep in yon sequester'd vale,
Seated in the birchen shade,
Aptly, the inconstant maid,
(Fickle as the changeful air)
May perhaps to me compare.——

   Ask ye fair ones whence I come?
Nor from Carthage, nor from Rome,
Nor did ancient Syracuse,
In its glory me produce——

Nor, but of exotic kind,
Will you me in Britain find——
   Leaving these your native plains,
Shou'd you traverse those domains,
Where the fruitful Nile doth flow,
Or o'er Arabs wilds should go,
And are circumspect, I'm clear,
Ladies you may find me there.

   Ask ye what's the shape I bear?
Like the Lizards, long and spare,
Is my body, and my head
Is of fishy kind 'tis said.
Feet I've four, beset with claws;
And like macaroni beaux,
If you view me round you'll find,
I've a tap'ring tail behind.——
   In the throat wou'd Alma dwell,
As facetious Prior doth tell?
If on partridge, or on hare,
Glutt'nous Macer might not fare;

                             Or

Or with greedy appetite,
Feed on ortolans ne'er might;
Or on turtle never dine,
Or his crop with capon line;
But was forc'd to feed like me.—
    Ladies, 'gainst your darling tea,
No invective here is meant;

Far be that from my intent.—
For I'm (let this gain belief)
No Tasso, nor yet fond of beef—
Rather fair one's I'm your friend,
And in practice recommend,
Such repast—being understood,
To live on elemental food.

X. Or PRIZE ENIGMA 771, *by Mr.* Tho. Woolston, *Master of the Academy,* Adderbury, Oxfordshire.

Ladies permit an intimate to claim
Your kind attention, while in mystic terms,
To exercise your genius, I unfold
Th' occasions dire from whence my birth proceeds.
So may the little loves and rosy smiles
Still play around you, wing'd with blooming joy
And ever new delights. ——— ——— ——— ———
    In sacred cells where human foot ne'er trod,
Know I was form'd, thence soon brought forth to light,
And launch'd into a world of care and woe;
Yet ling'ring oft, and trembling long I stand
Upon the borders of those sacred cells;
Nor wonder that, for set to guard their bounds,
A num'rous host of spears are seen to rise
In close battalia; hostile to return;
And once, alas! the closing portal past,
My native place I never more must see.
Thus Eve still linger'd on the beauteous verge
Of that sweet Paradise, her rashness lost;
Loth to resign fair Eden's blissful bow'rs,
Which she must never, never visit more.
When the lorn pair (expell'd those blest abodes)
With doleful thoughts opprefs'd, and wand'ring steps
Sought where to rest, 'twas then I first was seen;
And ever since on misery's sad race
I still attend companion of their way.
The cause of wretchedness and want I plead;—
Against th' oppressors wrongs, behold me rise;
And state the case with all the moving art
That elegance can boast! smote by my pow'rs
The stubborn heart relents, and yields redress,
When laws divine and human urge in vain!
    Well known to royal David in his griefs;
Then, when his heart was melted into love
And sweet contrition, mourning for his sins,
He tun'd his harp to penitential themes,
I frequent swell'd his sadly solemn strains,
Thro' which to latest times I still shall flow.
    Yet not to scenes of misery and woe
Am I confin'd—No; where the tide of joy
Flows in high rapture round the circle gay,

I too am seen, and publicly reveal,
The grateful thought that words lack pow'r to tell.
   Go, afk the favour'd youth what were his thoughts,
When firft he faw his dear Conftantia's fmile
Improv'd and heighten'd by my lucid beam?
O he will tell thee, all the radiant gems
Golcondo's mines can yield, cou'd never fhed
So rich a grace, o'er all her lovely charms,
As that emitted by my folter ray!
   What tho' on God's beft work I chiefly wait,
And light the fweeteft gem in mercy's throne,
Yet poets tell, among the herds I'm found;
And when old Nile laves Afric's fcorching plains,
With horrid monfters fell, O fad reverfe!
On direful deeds of carnage I attend.
If fabulous thofe tales, yet hence I gain
An epithet difguftful, when I rife
To aid hypocrify's detefted arts.———
   Now gentle nymphs, you beft can fhew my pow'rs,
Strip off this faint difguife, and tell my name.

NEW REBUSES, CHARADES, and QUERIES.

I. REBUS, by Aminicus.

To two-fifths of a vifitor add, if you pleafe,
One-fourth of a burden; and then unto thefe
Subjoin juft one half of a poem, right chofen,
Containing in lines little more than a dozen;
Will name you a nymph, whom my heart doth approve,
And for whom my breaft glows with the warmth of pure love;
Whofe mind's fo well furnifh'd, her language fo fweet,
That with her, when converfing, all time I forget.

II. REBUS, by Miss Betty Boys, of Stainton Vale.

If to a favage beaft, ye fair,
A homefield you unite,
A finging bard it will declare,
Who ftands in Di polite.

III. REBUS, by Mr. J. Stainmore, Newport, Ifle of Wight.

The fweeteft paffion of the human foul,
A nightly bird which for its prey doth prowl,
What by no frail-one ever is poffefs'd,
The fields where happy fouls find peaceful reft;
Th' initials join, and you will quickly fee
The lafting chain that binds fociety.

IV. REBUS, by Miss A. Wood, of Liverpool.

Before a meafure place a thing
For crookednefs well known,
And what with pleafure you behold
Will then be clearly fhewn.

I. CHARADE,

I. CHARADE, *by Mr.* W. W. Crowle.

My firſt in foreign climes doth ſpring;
My ſecond is a brittle thing,
     But elegant to ſee;
My whole you'll find my lady's maid
Has to her ladyſhip convey'd,
     Pray hand it unto me.

II. CHARADE, *by Mr.* James Daviſon, *Newcaſtle.*

My firſt 'tis ſaid, each fair wou'd be;
In ſtables you my ſecond ſee;
But if my whole the nymph can't gain,
To be my firſt ſhe ſighs in vain.

III. CHARADE, *by Mr.* M. Laidman, *Ward's Academy, Southampton.*

A fragrant ſhrub will name my firſt;
My next a boy's delight revers'd;
Around my whole ſee ſcandal flies,
And female reputation dies.

IV. CHARADE, *by Mr.* Tho. Nield, *Hawarden.*

Ah! awful firſt, in me my Delia ſleeps,
While Damon o'er her keeps my next and weeps;
My whole's a warning to my firſt ſome ſay,
The weak alarms, but not the wiſe and gay.

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From what cauſe proceeds the white ſpecks frequently ſeen on the finger nails; and why are they called gifts?

IV. QUERY, *by Mr.* J. Walton.

Whether is ill-nature or bodily deformity the greater bar to connubial happineſs?

N. B. *Several letters came too late to be noticed in their places.*

Answers to the Mathematical Questions.

I. Question 954, answered by Mr Geo. Baron, South Shields.

As the three numbers are in continued proportion, the product of the two extremes is equal to the square of the mean, and consequently the continual product of all the three is equal to the cube of the mean; therefore $\sqrt[3]{4096} = 16$ is the mean, or the second of the three numbers. Put now $x =$ one of the extremes, then is $68 - x =$ the other, and their product $68x - x^2 = 16^2 = 256$ the square of the mean; then, by completing the square, the two roots of this equation are 64 and 4, which are the two extremes; so that the three numbers are 4, 16, 64. Hence 32 is the age in years, 2 the month, and 16 the day of the month; that is, the gentleman was 32 years of age on the 16th day of February.

The same answered by Mr Wm. Virgo.

Let x, y, z, denote the three numbers. Then

$$\left. \begin{array}{l} xyz = 4096 = a \\ x + z = 68 = b \end{array} \right\} \text{ by the question,}$$

$$xz = y^2 \text{ by the nature of the proportionals.}$$

By substituting y^2 for xz in the first equation, it becomes $y^3 = a = 4096$, and so $y = 16$, consequently $xz = y^2 = 16^2 = 256$. From the square of the second equation subtract $4xz$ or 1024, there remains $x^2 - 2xz + z^2 = 3600$, the square root of which is $x - z = 60$, then by adding and subtracting this with the second equation; and dividing by 2, we have $x = 64$, and $z = 4$. And the age as above.

The same answered by Mr C. Brady.

By the question the mean term is given $= \sqrt[3]{4096} = 16 = b$. Put $a = 34$ half the sum of the extremes, and $x =$ hal their difference; then will those extremes be denoted by $a + x$ and $a - x$, hence their product $\overline{a + x} \times \overline{a - x} = a^2 - x^2 = b^2$, and therefore $x = \sqrt{a^2 - b^2} = 30$; consequently the thr numbers are 4, 16, and 32.

Solutions to this question were also given by Messrs. Wm. Adams, Ja. Adams, Amicus, Wm. Armstrong, G. Asheton, Job Ayres, G. B. Wm. Baylis, Tho. Baxley, Hen. Bell, J. Birch, Ra. Burton, C. Campbell, J. Campbell, J. Cavil, Chr. Cox, Tho. Cram, T. Crawhall, Jos. Dawbney, Rd. Dening, Rd. Elliott, Tho. Elmer, L. Evans, J. Ewbank, J. Farey, J. Fildes, Geo. Foy, J. Furnass, Jos. Garnett, Jos. Gittins, Ol. Gregory, J. Hartley, J. Huthersal, Rd. Hewett, J. Hawkes, T. Hewitt, T. Hopkinson, T. Hornby, J. Jackson, Wm. Johnson, Wm. King, Tho. Leybourn, J. Liddell, Miss Nancy Mason, Jas. Measor, Paul Measor, Tho. Milner, J. Mitchell, Tho. Molineux, M. Mooney, C. Nichols, Jas. Nicholson, Tho. Nield, J. Nuttall, Wm. Pearson,

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ANSWERS to the MATHEMATICAL QUESTIONS.

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Solutions to this queftion were alfo given by Meffrs. Wm. Adams, Ja. Adams, Amicus, Wm. Armftrong, G. Afheton, Job Ayres, G. B. Wm. Baylis, Tho. Baxley, Hen. Bell, J. Birch, Ra. Burton, C. Campbell, J. Campbell, J. Cavil, Chr. Cox, Tho. Cram, T. Crawhall, Jof. Dawbney, Rd. Dening, Rd. Elliott, Tho. Elmer, L. Evans, J. Ewbank, J. Farey, J. Fildes, Geo. Foy, J. Furnafs, Jof. Garnett, Jof. Gittins, Ol. Gregory, J. Hartley, J. Hutherfal, Rd. Hewett, J. Hawkes, T. Hewitt, T. Hopkinfon, T. Hornby, J. Jackfon, Wm. Johnfon, Wm. King, Tho. Leybourn, J. Liddell, Mifs Nancy Mafon, Jas. Meafor, Paul Meafor, Tho. Milner, J. Mitchell, Tho. Molineux, M. Mooney, C. Nichos, Jas. Nicholfon, Tho. Nield, J. Nuttall, Wm. Pearfon,

C. *Pritty*, *J*. *Rees*, *T*. *Ridout*; *Wm*. *Robinson*, *Ben*. *Rogers*, *Alex*. *Rowe*, *J*. *Rutherford*, *J*. *Scholfield*, *Ra*. *Simpson*, *C Skewes*, *Geo*. *Stephenson*, *J*. *Surtees*, *Wm*. *Swain*, *Wm*. *Tarmior*, *M*. *Terrey*, *H*. *A*. *Thawtenson*, *T*. *Thompson*, *Sam*. *Thompstone*, *Wm*. *Wardley*, *Edw*. *Wear*, *Geo*. *Webb*, *Rob*. *Wilkinson*, and *J*. *Wright*.

II. QUESTION 955, *answered by Mr* G. H.

The industrious man hinted at by the ingenious proposer of this question, I suspect to be no other than poor honest John Bull; for I find that, putting millions for pounds; the circumstances of this case are the same as those of the national debt. The question may be thus solved; put $a = 250$ the debt, $p = 8 \cdot 25$ the present sum saved, $u = \cdot 25$ the future quarterly saving, $r = 1 \cdot 01$ the quarterly ratio at 4 per cent, and $x =$ the time in quarters; the equation will be

$$pr^x + \frac{ur^x - u}{r - 1} = a,$$ which reduced, the time will be found to be

nearly 53 years, in less than which time I will venture to predict the national debt will not be paid.

The same answered by Mr Edw. Wear, *Assistant at the English Academy, Canterbury.*

Add the present worth of the annuity of one pound, payable quarterly, which is 25 pounds, to both the debt and principal, which will then become 275 l.; and $33\frac{1}{4}$ l. then find how long that principal $p = 33\frac{1}{4}$ l. will be in discharging the debt $d = 275$ l. at r the given rate of 1 per cent. per quarter compound interest; the general theorem for which is $\frac{\log. \text{ of } p - \log. \text{ of } a}{\log. \text{ of } r} = t = 212 \cdot 32$ quarters, or 53·08 years the time required.

Ingenious answers were also given by Messieurs Wm. Adam, Ja. Adams, Amicus, Wm. Armstrong, G. B, G. Baron, H. Bell, C. Brady, C. Campbell, J. Cavill, Chr. Cox, T. Crawball, Rd. Elliott, L. Evans, J. Garnett, J. Hartley, T. Hewitt, J. Hutherfal, Wm. King, T. Leybourn, T. Milner, J. Mitchell, M. Mooney, J. Nicholson, T. Ridout, Alex. Rowe, C. Skewes, J. Surtees, G. Stevenson, T. Thompson, Wm. Virgo, and Rob. Wilkinson.

III. QUESTION 956, *answered by Mr* Rob. Wilkinson.

Let A B C D represent the field; A and E the first and second stations; then there are given

∠ B A C = 42° 28′
∠ B E C = 30 16
∠ B C E = 90 0.
line EA = 520 links
line ED = 730. Hence are und
∠ E C A = BAC − BEC = 12
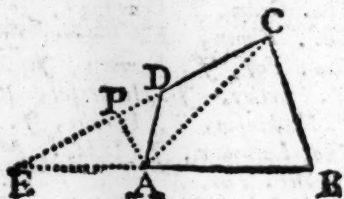
$\angle$ EBC $= 90^\circ -$ BEC $= 59\ 44$. Then by Trigonometry; as $s.\angle$ ECA : EA :: $s.\angle$ CAE or $s.\angle$ BAC : EC $= 1661\cdot34$, and $s.\angle$ EBC : EC :: $s.\angle$ ECB : EB $= 1923\cdot54$. Then, by Rule 2, pa. 96 Hutton's Mensuration, 2d edit.

EB $\times$ EC $\times \frac{1}{2} s.\angle$ E $=$ area of the triangle EBC, and EA $\times$ ED $\times \frac{1}{2} s.\angle$ E $=$ area of the triangle EAD, thereof.

$(\overline{EB \times EC} - \overline{EA \times ED}) \times s.\angle$ E $= 709693 = 7$ ac. or. $15\frac{1}{2}$ poles, is the area of ABCD required.

Other ingenious answers were given by Messieurs Adam, Adams, Amicus, Armstrong, Asheton, G. B, Baron, Bazley, Baylis, Bell, Burton, C.Campbell, J. Campell, Cavill, Cox, Cram, Dawbney, Elliot, Evans, Ewbank, Farey, Foy, Furnass, Garnett, Goad, Gregory, Hartley, Hewitt, Hopkinson, Huthersal, Jackson, Johnson, King, Leybourn, Liddell, Nancy Mason, Milner, Mitchel, Mooney, Nichols, Nicholson, Paul, Pearson, Ridout, Rowe, Skewes, Stevenson, Surtees, Tarmior, Thompson, Virgo, Wear, Wilkinson, Woolston, and Wright.

IV. Question 957, *answered by Mr* John Jackson.

Bisect A D in F, and draw BFG, and it is done. For, as A F $=$ FD, and the two triangles ABF, DGF equiangular, these are equal in all respects. Therefore B G² $=$ BC² $+$ C G² $=$ BC² $+ 4$CD² $= 65^2$, as by the question; and the area of the triangle DGF $=$ ABF $= \frac{1}{4}$ of ABCD $= 13 \times 19\frac{1}{2} = 253\frac{1}{2}$.
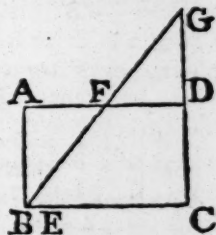
Other ingenious solutions to this question were given by Messieurs Adams, Amicus, Armstrong, Asheton, G. B, Baron, Bell, Brady, Buchanan, Campbell, Cavill, Cox, Cram, Crawhall, Elliot, Evans, Ewbank, Farey, Foy, Furnass, Garnett, Gompertz, Hartley, Hewitt, Huthersal, Johnson, Leybourn, Liddell, Nancy Mason, Measor, Milner, Mitchell, Mooney, Nuttall, Pearson, Pritty, Ridout, Rowe, Rutherford, Skewes, Surtees, Tarmior, Virgo, Wardley, Wear, Wilkinson, Woolston, and Wright.

V. Question 958, *answered by* Amicus.

By the question C 6 $= 2$ Q 6, and sin. ZP $+$ C 6 $-$ sin. ZP $-$ C 6 $= \frac{1}{2}$ sin. PH $= 2$ cos. ZP $\times$ sin. C 6 $= 2$ sin. PH $\times$ sin. C 6, or $\frac{1}{4} =$ sin. C 6 the declination $14^\circ\ 28'\ 39''$, on April 28; the latitude $30^\circ\ 15'\ 55''$.

The same answered by Mr John Cavill, *Beighton.*

It is well known that the difference of the sines of the sun's meridian altitude and midnight depression is equal to twice the sine of

his altitude at fix o'clock; and fince that difference is equal to half the fine of the latitude, by the queftion; the ratio of the fines of the latitude, and his altitude at fix, is that of four to one; therefore as $4 : 1 :: 1 : \frac{1}{4} =$ fine of 14° 28', the fun's declination nearly; hence his alt. at fix is 7° 14'. Again, fin. 14° 28' : fin. 7° 14' :: rad. 1 : fin. 30° 16' the latitude required; and the time is the 28th day of April.

Ingenious anfwers to this queftion were also given by Meffieurs Adams, Afheton, Baron, Bell, Campbell, Cox, Evans, Farey, Garnett, Hawkes, Hewitt, Johnfon, Leybourn, Milner, Mooney, Nichols, Nicholfon, Rowe, Stevenfon, Surtees, and Wiliamfon.

VI. QUESTION, 959, *answered by the Propofer, Mr* James Afheton, *of Harrington, near Liverpool.*

1ft, For Queft. 58. Suppofe the furface of the water to rife to L O. Here are given A B = 5, C D = 6, E F = E H = 2, E being the centre of the fphere, and F the point of contact of the fphere and cone; to find P H the height of the fegment immerfed. Now B D $= \sqrt{CB^2 \times CD^2} = 6.5$; then CB : BD :: EF : ED = 5.2, and CB : CD :: EF : DF = 4.8; hence DE : DF :: DF : DG = 4.43077, and H D = ED − EH = 3.2, alfo GH = GD − HD = 1.23077; likewife DC : DH :: AB : IK = $2\frac{2}{3} = \frac{8}{3}$. Now cOF (the ungula above the water, where the fphere is immerfed) is = the cone G ab, as may be proved; whence IK² × .7854 × $\frac{1}{3}$ GD − $\frac{1}{3}$ of the whole cone ABD is = cOF (round the fphere) = the fmall cone G ab = .393683; then as cone IGK : cone Gab :: GH³ : GP³, or $\sqrt[3]{IGK}$: $\sqrt[3]{Gab}$ :: GH : GP = .684; hence PH = GH − GP = .5467, the anfwer.
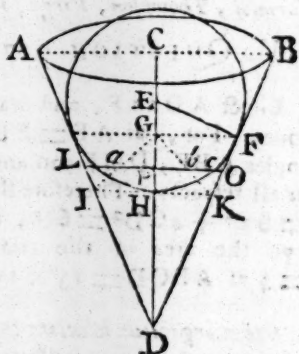
2d For Queft. 960. Let L V M be the whole cone, and F V G = $\frac{1}{5}$ of it = 7.854 cubic inches. Here V N = 6, L M = 5; then $\sqrt[3]{\dfrac{63}{5}}$ = V H = 3.508821; and V N : V H :: L M : F G = 2.924, then GH = 1.462. But by fim. triangles VH : HG :: KT : KO, that is 3.508821 : 1.462 :: KT : KO :: 1 : .416664; therefore if KT = 1, then KO = .416664; then KO : KT :: KT : KV = 2.4, and VO = VK + KO = 2.816664. But OT = $\sqrt{KT + KO^2}$
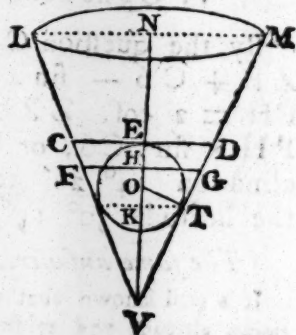
$= 1\cdot083332$; hence $VE = VO + OE = 3\cdot9$, and $VK : KT ::$
$VE : ED = 1\cdot625$, therefore $CD = 3\cdot25$. Now, with thefe
fimilar dimenfions, the folid $VCD = 10\cdot78454$; but $OT \times 2 =$
$2\cdot166666 =$ diam. of the globe, then $2\cdot166663 \times \cdot5236 =$
$5\cdot325682$; and this is, by the queftion, evidently eqval to the folid
$CDGF$; then $10\cdot78454$ (the cone) $- 5\cdot32568$ (CDGF) $=$
$5\cdot45886 =$ the folid VFG; hence $5\cdot45886 : 7\cdot854 :: 10\cdot78454 :$
$15\cdot5163 =$ the true content of the folid VCD, from which fubtract
the folid VFG ($\frac{1}{5}$ of the cone), leaves $7\cdot6623 =$ the true content of
the globe; then $\sqrt[3]{\dfrac{7\cdot6623}{\cdot5236}} = 2\cdot446$, the diameter very nearly.

*Moft of the other contributors refolved this queftion by the method of
Trial-and Error, or Rule of Pofition, viz. Meffieurs Adams, Amicus,
Cavill, Evans, Garnett, Hartley, Johnfon, Pearfon, Rutherford,
Stevenfon, Surtees, and Wilkinfon.*

VII Question 960 *anfwered by* Mr. Colin Campbell, *of Kendal.*

In the right-aneled fpherical triangle PHM, are
given $PH = 35^{\circ}$ 50' colat. of H or Hovingham,
and $HM = 9$ miles $= 7'$ $46''\cdot56$, to find $PM =$
35° 50' 0''$\cdot7 =$ colat. of Malton; hence its lat.
is 54° 9' 59''$\cdot3$; and by a like procefs in the tri-
angle PHT, where TH is 18 miles $= 15'$ 33'' 1,
is found $PT = 35^{\circ}$ 50' 2''$\cdot9$ the colat. of Thirfk,
therefore its lat. is 55° 9' 57''· 1. If from T a
great circle TO be drawn at right-angles to PT, it
will cut PM, produced, in a point O, conftituting
a fpherical triangle TMO; the area of which is re-
quired. By fpherics are found the $\angle PTH =$
89° 38' 31''·9, and $PMH = 89^{\circ}49'\cdot5''\cdot6$; confeq. $MTO = 21'28''$ 1,
and $TMO = 90^{\circ}$ 10' 14''·4. But as the fides of the fpherical
triangle are fo very fmall, we cannot find its area by the principles of
fpherics with the ordinary tables *, and for the fame reafon its area
may be approximated to fufficient exactnefs by confidering it as a plane
triangle, in which the angles and the fide TM are given; let fall
a perp. MR upon TO; then it will be as rad. : TM :: fine
$MTR : MR = \cdot16815$, alfo fin. $TOM : TM ::$ fin. $TMO :$
$TO = 27\cdot0934$; hence $\frac{1}{2} TO \times MR = 2\cdot27787$ miles, or
1458 acres, the area fought.

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* Mr. Garnett, in his folution of this queftion, remarks that, " In Dr. Hutton's
Math. Tables, the log. fines and tangents are calculated to every fecond, in the firft
two degrees of the quadrant, which are extremely ufeful in making fuch calcu-
lations, which would be found very difficult and laborious to perform by the com-
mon tables, to any tolerable degree of exactnefs."

The same answered by Mr John Liddell, *Hovingham.*

Let P represent the north pole, H the place of Hovingham, and the great circle P H its meridian, or its colat. at right angles to which let the great circle T H M be drawn, upon which set off H M = 9, and H T = 18 miles; then will T be the place of Thirsk, and M that of Malton.—Draw the meridians P T and P M and T O perp. to P T, forming the spherical triangle T M O, the area of which is required. Now as 25,000 miles : 360° :: 9 miles : 7′ 48″ 10‴ = H M, the double of which is 15′ 36″ 20‴ = T H: therefore in the right-angled triangles P H T and P H M, the legs in each are given, to find the rest, which will be best found by the problems in page 159 and 160 of Dr. Hutton's Tables, by which we find as follows:

PT = 35° 50′ 3″ 0‴, its comp. = 54° 9′ 57″ 0‴ the lat. of Thirsk,
PM = 35 50 0 40, its comp. = 54 9 59 20 the lat. of Malton,
∠ PTH = 89 38 24 00, its comp. = 0 21 36 00 = ∠ O T M,
∠ PMH = 89 49 11 40, its suppl. = 90 10 48 20 = ∠ O M T,
hence in △ T M O is found ----- = 89 27 35 41·78 = ∠ T O M,
sum of the three angles is ------- 180 0 0 1·78

Hence, by Dr. Hutton's Mensur. page 202, 180° : 25000² × ·0795774715 :: 1‴·78 : 2·277 miles, the area; which multiplied by 640, gives 1457 acres.

Various other ingenious answers were given by Messieurs Adams, Amicus, Asheton, Burton, John Campbell, Cox, Garnett, Jackson, Milner, Mooney, Nicholson, Rowe, Stevenson, Tarmior, Virgo, *and* Wilkinson.

VIII. QUESTION 961, *answered by the Proposer,* Mr Thomas Woolston.

The solution of this question presents us with a case in spherics, where the three sides are given, viz. the co-lat. 37° 55′ the sun's co-alt. 50° 10′½, and his co-declin. 71° 51′, to find the angle at the zenith, or sun's azimuth, and the angle at the pole, or time from noon; these resolved give 114° 14′ 15″½ his azimuth from the north, and 47° 28′ 27″½ for the angle at the pole; this reduced into time gives three hours ten minutes nearly for the time from noon; and as the shadow falls between the north and east, it must be in the afternoon; and the declination answers to the 11th day of May; also the point which the sun was on being 65° 45′ 44″½ from the south; gives N E by E ¼ E for the bearing of the steeple: Now the angle subtended by the steeple and first station will be found 66° 25′½ nearly, therefore the sum of the angles at the two stations is 170° 17′½, the supp. of this, or 9° 42′½ is the angle at the steeple; hence by Plane Trig. as sin. 9° 42′½ : 3650 links :: sin. 103° 52′ : 21014 linkes = 210·14 chains, or 2 miles and 5 furlongs, the distance sought.

The same answered by the Rev. Mr L. Evans, Little Bedwin.

Let A and B be the first and second stations, C the steeple, P the pole, and S the sun. Now there are given the latitude $=$ 52° 5′ north, declination 18° 9′ north, and the altitude of the sun's centre $=$ 39° 49′ $\frac{1}{2}$, the complements of which give PB $=$ 37° 55′ the co-lat., PS $=$ 71° 51′ the co-declin, and BS $=$ 50° 10′ $\frac{1}{2}$ the co-altitude; to find the angle of time, or at the pole P $=$ 47° 28′ 30″, answering to 3h. 9m. 54f. afternoon, the time of observation on the 11th of May; and the angle PBS $=$ 114° 14′ 15″ the sun's azimuth from the north, whose supplement gives the angle PBC $=$ 65° 45′ 45″ $=$ NE by E $\frac{3}{4}$ E fere., the bearing of the steeple at the second station.—Let NA be another meridian or parallel to PB, then since there are given the $\angle$ NAB the bearing NW $\frac{1}{4}$ W $=$ 47° 48′ 45″, the $\angle$ BAC $=$ 103° 52′, therefore PBA or supp. of NAB $=$ 132° 11′ 15″, from which taking PBC, there remains $\angle$ ABC $=$ 66° 25′ 30″; lastly, the sum of ABC and BAC taken from 180°, leave the $\angle$ C $=$ 9° 42′ 30″; then, in the plane triangle ABC, being known all the angles, and the side AB $=$ 3650 links $=$ 36 $\frac{1}{2}$ chains, it will be as sin. $\angle$ C : sin. $\angle$ A :: AB : BC $=$ 210 $\frac{1}{7}$ chains $=$ 2 $\frac{5}{8}$ miles.
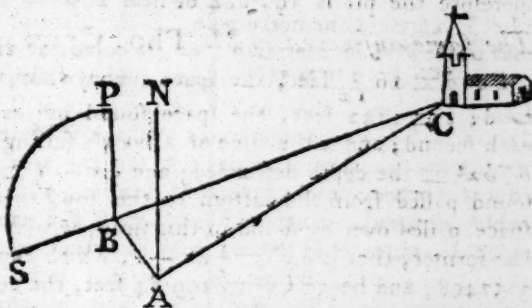
This question was also resolved by Messieurs Adams, Amicus, Asheton, Baron, Bell, Birch, Bowden, Burton, Campbell, Cox, Ewbank, Furmass, Garnett, Goad, Hartley, Hopkinson, Huthersal, Johnson, King, Liddell, Mitchell, Mooney, Nichols, Nicholson, Paul, Pearson, Ridout, Rowe, Simpson, Stevenson, Surtees, Tarmior, Thompson, Virgo, Wear, and Wilkinson.

IX. Question 962, answered by Mr. James Adams, Schoolmaster, Plymouth-Dock.

Put $a = 1142$, $b = 16\frac{1}{12}$, and $x =$ the depth of the pit in feet. Then as $\sqrt{b} : \sqrt{x} :: 1'' : \sqrt{\frac{x}{b}}$ the time of the stone's descent, and

$a : x :: 1'' : \frac{x}{a}$ the time the sound is ascending to the brink of the pit; therefore, by the question, $\frac{x}{a} + 1 = \frac{1}{3}\sqrt{\frac{x}{b}}$; this reduced gives

$x^2 + 2 - \frac{a}{9b} \cdot ax = - a^2$, in numbers $x^2 - 6725\cdot76857x = -$

1304164; here the value of x is $199 \cdot 844$ or $6525 \cdot 925$; but the latter number, being near one mile and a quarter, is too great; therefore the pit is $199 \cdot 844$ or near 200 feet deep.

The same answered by Mr Tho. Cram, *jun. Killingworth.*

Put $b = 16 \frac{1}{12}$ feet, the space a body falls through in the first second; $c = 1142$ feet, the space sound moves uniformly through in each second; and x the time of a body's falling. Then as $1^2 : x^2 :: b : b x^2 =$ the depth descended; and $\frac{1}{3} x - 1 =$ the time in which the sound passed from the bottom to the top, therefore $\frac{1}{3} c x - c =$ the space passed over by sound in this time, which space must be equal to the former, that is $b x^2 = \frac{1}{3} c x - c$, which equation solved gives $x = 3 \cdot 52498$; and hence $b x^2 = 199 \cdot 84$ feet, the depth of the pit.

Other ingenious answers were also given by Messieurs Wm. Adam, Amicus, Armstrong, G Asheton, Job Ayres, G. B, Geo Baron, Bazley, Bell, Buchanan, Burton, Campbell, Cavill, Cox, Cunliffe, Elliott, Ewbank, Furnass, Garnett, Gompertz, Gregory, Hartley, Hewitt, Hopkinson, Hornby, Hutherſal, Johnson, King, Leybourn, Liddell, Nancy Mason, Milner, Mitchell, Moony, Nichols, Nicholson, Nuttall, Paul, Pearson, Pruty, Rowe, Simpson, Stevenson, Surtees, Tarmior, Thompson, Virgo, Wilkinson, and Wright.

X. QUESTION 963, *answered by the Rev.* J. Sampson.

Multiply the given equation by $a n x^n y^n$, and it becomes $a n x^{n-1} \dot{x} y^n + a n x^n y^{n-1} \dot{y} = n x^{m+n} \dot{x}$; the fluents of which are

$$a x^n y^n = \frac{n}{m+n+1} x^{m+n+1}. \quad Q. E. I.$$

Note—Mr. Thomas Simpson, after laying down a rule for the resolution of fluxional equations, gives this equation as an example, art. 262 of his Fluxions; and after giving a solution in the particular case where $n = 1$, adds, " this appears to be the only case of the given equation, where this method is of use." But it appears from the above that the method is general, whatever be the value of n. I readily confess that this was shewn me several years ago by an ingenious school-fellow of mine (now a Fellow of St. John's, Cambridge), who had it from that able mathematician Mr. Dawson of Sedbergh, at the time he was his pupil, and I was induced to make it public by inserting it here, thinking it might be servicable to the readers of Simpson's Fluxions, if generally known.

The same answered by Mr John Dalton, *Kendal.*

By reduction $\dfrac{\dot{x}}{x} + \dfrac{\dot{y}}{y} = \dfrac{x\dot{y} + y\dot{x}}{xy} = \dfrac{x^m \dot{x}}{a y^n}$; put $xy = z^2$; then

$2 z \dot{z} = x\dot{y} + y\dot{x}$, and $\dfrac{2\dot{z}}{z} = \dfrac{x\dot{y} + y\dot{x}}{xy} = \dfrac{x^m \dot{x}}{a y^n} = \dfrac{x^m \dot{x}}{\dfrac{a z^{2n}}{x^n}} = \dfrac{x^{m+n} \dot{x}}{a z^{2n}}$,

hence $2az^{2n-1}\dot{z} = x^m + n\dot{x}$; and taking the fluents we get $\dfrac{az^{2n}}{n} =$

$\dfrac{x^{m+n+1}}{m+n+1}$; or by reftitution $\dfrac{a}{n} x^n y^n = \dfrac{x^{m+n+1}}{m+n+1}$; or $\dfrac{a}{n} y^n =$

$\dfrac{x^{m+n}}{m+n+1}$, the relation required.

This queſtion was alfo anſwered by Meſſrs Amius, Aſpeton, G. B. Baron, Bell, Brady Cox, Elliott, Furrnaſs, Garnett, Johnſon, Liddell, Milner, Nicholſon, Nuttall, Pearſon, Rowe, Stevenſon, Terry, Wilkinſon, and Wright.

XI. QUESTION 964, *anſwered by* Mr A. Buchanan, *Sedgefield.*

In order to find the quadrature of the fpace
C D F. Defcribe, on the fame centre C,
the arch df indefinitely near D F; join A D;
and demit the perpendicular D E; then by
fim. tri. (putting A C $= 2r$, and C D $=$

C F $= x$), A C : C D :: C D : C E $= \dfrac{x^2}{2r}$.
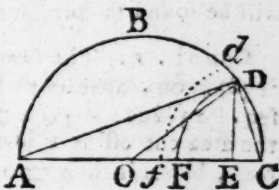
confeq. E F $=$ C F $-$ C E $= x - \dfrac{x^2}{2r}$. Now fd D F is the fluxion of

the area D F C $=$ arch D F $\times$ F$f =$ arch D F $\times \dot{x}$; but, by prop. 14
book 1 Emerfon's Trigon. or prob. 7 fect. 1 part 2 Hutton's Menfur.,

the arch D F is $= x \sqrt{2(1 - \dfrac{x}{2r}) \times (1 + \dfrac{1 - \dfrac{x}{2r}}{3 \cdot 4} + \dfrac{3(1 - \dfrac{x}{2r})^2}{4 \cdot 5 \cdot 8} }$,

&c.), whence, putting $1 - \dfrac{x}{2r} = z^2$, the fluxion of the fegment
D F C is $=$

$-8r^2 z^2 \dot{z} \cdot \overline{1 - z^2} \sqrt{2} \times (1 + \dfrac{z^2}{3 \cdot 4} + \dfrac{3z^4}{4 \cdot 5 \cdot 8} + \dfrac{3 \cdot 5 z^6}{4 \cdot 7 \cdot 8 \cdot 12}$ &c.$)$,

and the correct fluents, or the fegment D F C is $=$

$8r^2 \sqrt{2} \times (\dfrac{1}{3} - \dfrac{1}{5} - \dfrac{1}{5 \cdot 3 \cdot 4} - \dfrac{1}{7 \cdot 3 \cdot 4} - \dfrac{3}{7 \cdot 4 \cdot 5 \cdot 8}$ &c.$) -$

$8r^2 \sqrt{2} \times (\dfrac{1}{3} z^3 - \dfrac{1}{5} - \dfrac{1}{5 \cdot 3 \cdot 4} \cdot z^5 - \dfrac{1}{7 \cdot 3 \cdot 4} - \dfrac{3}{7 \cdot 4 \cdot 5 \cdot 8} \cdot z^7$ &c$)$.

But the fum of the former part of this feries is $= 8r^2 \sqrt{2} \times \cdot 1388{,}4009$;
hence then, equating this with any given poffible area (a), we fhall
have

$8r^2 \sqrt{2} \times \cdot 13884009 - 8r^2 \sqrt{2} \times (\frac{1}{3}z^3 - \frac{1}{5} - \overline{\frac{1}{5\cdot3\cdot4}} \cdot z^5 \&c.) = a$, or

$\frac{1}{3}z^3 - \frac{1}{5} - \overline{\frac{1}{5\cdot3\cdot4}} z^5 - \overline{\frac{1}{7\cdot3\cdot4} - \frac{3}{7\cdot4\cdot5\cdot8}} z^7 \&c. = \cdot 13884009 -$

$\frac{a}{8r^2\sqrt{2}}$.

From whence, by reverting the series, or otherwife, z in all cafes may be found, and confeq. the required radius x (being $= \overline{1-z^2} \cdot 2r$) will alfo be known.

EXAMPLE. Suppofe $r = 39\cdot25073055$ &c., and $a = 1210$, which is the cafe propofed at queft. 13 Carnan's Diary 1788; then z will be found $= \cdot648563$, and confeq. $x = 45\cdot481$ nearly, which will be found to correfpond with the anfwer by any other method.

COROL. 1. The fum of the feries mentioned to be equal $8r^2\sqrt{2} \times \cdot 13884009$, appears to be equal $2r^2 \times \cdot 7853981633$ &c., and confeq. $\cdot 1388400 \times 4\sqrt{2} = \cdot 7853981633$ &c. For, when $x = 2r$, the area cut off is evidently the whole femicircle $= 2r^2 \times \cdot 785398$ &c., but z is then $= 0$, and confeq. the value of a barely $= 8r^2 \times \cdot 13884$ &c.; theref. &c.

COROL. 2. If it were required to find the radius CD, when the arch DF is a maximum. Then the length of that arch being univerfally $= 2rz \cdot \overline{1-z^2} \sqrt{2} \times (1 + \frac{z^2}{3\cdot4} + \frac{3z^4}{4\cdot5\cdot8} + \frac{3\cdot5z^6}{4\cdot7\cdot8\cdot12} \&c.)$,

by taking the fluxion, and equating it to 0, the values of z and x may be determined.

This queftion was alfo ingenioufly anfwered by Meffieurs Amicus, Henry Bell, Chr. Cox, Jof. Garnett, Wm. Johnfon, Tho. Leybourn, Mic. Mooney, Ja. Nicholfon, Wm. Pearfon, Alex. Rowe, and Rob. Wilkinfon.

XII. QUESTION 965, *anfwered by Amicus.*

If $x =$ any variable height of the water, $d = 193$ inches, and $\frac{4}{60} = c$, then $\sqrt{d} : 2d :: \sqrt{x} : 2\sqrt{dx}$; and $\sqrt{2dx} =$ the effluent velocity, $\frac{\sqrt{2dx}}{py^2} = c$ the velocity of the defcending furface $(p = 3\cdot14159)$ which alfo gives the biquad. parabola for the form of the veffel, and $py^2\dot{x} = \frac{\sqrt{2d}}{c} \times x^{\frac{1}{2}}\dot{x}$, fluent $= \frac{2\sqrt{2d}}{3c}x^{\frac{3}{2}} = 323\cdot796$ ale gallons.

The same answered by Mr John Dalton, *of* Kendal.

Since the descent of the surface of the water is uniform, the vessel cannot be cylindrical, but of such a form, that the area of the surface of the water, is always directly as the velocity of the effluent water; or, which amounts to the same thing, as the sq. root of the perp. height of the surface of the water above the hole; whence, putting $p = \cdot7854$, $x = $ any variable height of the surface, and $y = $ the corresponding diam. of the vessel, we shall have y^2 as $\sqrt{x}$, or y^4 as x; from which it appears that the vessel is formed by the revolution of a parabolic curve of the 4th order round its axis. Moreover, as the surface descends $\frac{1}{15}$th of an inch the first second, and the depth $= 5$ feet, the quantity of water discharged in the first second will be $\dfrac{1}{144}\sqrt{10 \times 16\frac{1}{12}} = \cdot02807$ feet, which gives the diam. of the top of the vessel, or $AB = 4\cdot49$ feet $= d$. Hence we shall have $\sqrt{5} : d^2 :: \sqrt{x} : y^2 = EF^2 = d^2\sqrt{\frac{1}{5}x}$, and the fluxion of the content $= pd^2\dot{x}\sqrt{\frac{1}{5}x}$, the fluent of which $= \frac{2}{3}pd^2\sqrt{\frac{1}{5}}\cdot x^{\frac{3}{2}}$ $=$ the solidity; and when $x = 5$, this becomes $\dfrac{10}{3}pd^2 = 52\cdot83$ feet $= 323\cdot7$ ale gallons, the content.
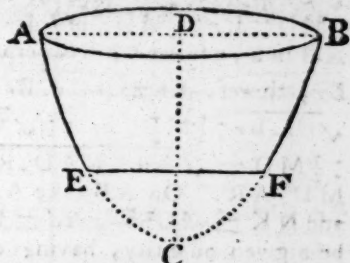
If we take the supposition that the velocity of the effluent water is equal to that acquired by falling through the *whole* height of the surface, instead of half of it, the top diameter will come out $5\cdot34$ feet, and the content $\sqrt{2} \times 323\cdot7 = 457\cdot8$ ale gallons.

Ingenious solutions to this question were also given by Messieurs G. Asheton, A. Buchanan, Ra. Burton, Chr. Cox, Ja. Cunliffe, Rd. Elliott, T. Hewitt, J. Jackson, Wm. King, Tha Leybourn, John Liddell, John Nuttall, Nancy Mason, Mic. Mooney, Ja. Nicholson, Wm. Pearson, C. Pritty, John Rodham, John Ross, Alex. Rowa, Tim. Simpson, Geo. Stevenson, M. Terry, and Rob. Wilkinson.

XIII. QUESTION 966, *answered by* Amicus.

If BL be let fall perp. to AC, and Lr drawn parellel to AB, then, if the body instead of descending along CA, moved in a parabola so as to have the same direction CA and velocity at A, it is well known that Cr would be the height of that parabola above AB, and $Lr = \frac{1}{4}$ of its random, or $2Lr$ the semiordinate to the abscissa
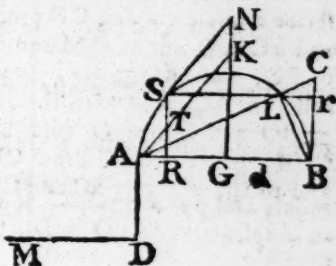
Cr. And, by conics, if the ball strike DM at M, $\sqrt{Cr} : 2Lr ::$ $\sqrt{Cr + AD} : 2Lr + MD$, or $\sqrt{Cr} : \sqrt{Cr + AD} - \sqrt{Cr} :: 2Lr$: MD :: $Lr : \frac{1}{2}MD$; produce rL till it cuts a semicircle described on AB in S, and let fal SR perp. to AB, then $AR = Lr$, and $SR = Br$, theref. $Lr = \sqrt{Cr . Br}$, and $\sqrt{Cr} : \sqrt{Cr + AD} - \sqrt{Cr} ::$ $\sqrt{Cr.Br} : \frac{1}{2}MD$, or $1 : \sqrt{Cr + AD} - \sqrt{Cr} :: \sqrt{Br} = \sqrt{RS}$: $\frac{1}{2}MD = \sqrt{AR^2 + AD.RS} - AR$, or $\frac{1}{4}MD^2 = AD.RS - MD.AR$. On AB take $Ad = AD$, and the perp. $dK = MD$, and $NK = MD^2 \div 4Ad = RS - TR = ST$. If therefore MD be a given quantity, having described the semicircle, taken $Ad = AD$, $dK = MD$, and NK as above, thro' N parallel to AK draw a right line, which in all possible cases will either cut the circle in two points, or touch it in one as S, in which latter case ST and consequently MD is a maximum because AD is given. But to find under what limits this latter case obtains, since $\frac{1}{4}Ad . dK^2 = Ad^2.RS - Ad^2 . TR = Ad^2.RS - Ad.dK.AR = Ad^2.RS - Ad.dK.AG + Ad.dK.RG$ (G being the circle's centre, and GS perp. to SN and AK) $= Ad^2.RS + dK^2.RS - Ad.dK.AG = AK^2.RS - Ad.dK.AG = AK^2.RS - Ad.dK.AG = AK.AG.Ad - dK.AG.Ad = \frac{1}{2}AB.Ad.\overline{AK - dK}$; $dK^2 = 2AB.\overline{AK - dK}$, and $dK4 = 4AB^2.AC^2 - 4DK3.AB$, which therefore is in general solid. But if $2AD = AB$, $dK = \dfrac{AB\sqrt{2}}{1 + \sqrt{2}\sqrt{2 - 1}}$, and $\dfrac{dK}{Ad} = $ tang. of $dAK = 50^\circ 15'$, and $CAB = ASR = \frac{1}{2}AKd = 19^\circ 52'\frac{1}{2}$, &c.

Other ingenious answers to this problem were given by Messieurs G. Asheton, A. Buchanan, Chr. Cox, Ja. Cunliffe, John Dalton, John Farey, Jos. Garnett, T. Hewitt, Tho. Leybourn, Mic. Mooney, John Nuttall, John Ross, Alex. Rowe, Vertigo, W. Virgo, and Rob. Wilkinson.

XIV. QUESTION 967, *answered by the proposer*, Amicus.

Let ab be the position of the given hypotheuase when $aa = ob$ and the perp. $Co = ao = ob$ and AB any other position, perp. to which draw CP, then o and P are in the curve, with oC radius describe a circle cutting CP produced in S and aC in Q, draw PM and Sr parallel to BC, take $AO = BO$, draw OT parallel to AC, and with the radius AO $= BO$ and centre O describe a circle CLA, perp. to SC draw $CE = \frac{1}{2}SC$, and to the semiaxes SC and CE describe
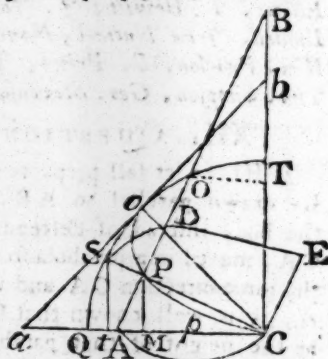
an ellipsis cutting PO n D, then must $PD = \frac{1}{2}PO$. Also $\frac{1}{4}$ the area

of the circular segm. PALC = the curved area PpCP. And the elliptic arc DE = the curve PpC.

For since the $\angle$ACS=ABC, and SC=BO=AO, St=OT, TC=BT, and the fluxion of the area PpC$=\dfrac{\text{PC}^2.\dot{\text{SQ}}}{2\text{BO}}=\dfrac{\text{PC}^2.\dot{\text{OT}}}{2\text{BT}}$

$=\text{PM}.\dot{\text{OT}}=\frac{1}{2}\text{PM}.\dot{\text{AC}}=\frac{1}{2}\text{PM}.\dfrac{\text{AB}.\dot{\text{AP}}}{2\text{AC}}=\frac{1}{4}\text{PC}.\dot{\text{AP}}$, and P$p$C

$=\frac{1}{4}$PALC. Also the fluxion of the rectification $=\sqrt{\dot{\text{PC}}^2+\dfrac{\text{PC}^2.\dot{\text{SQ}}}{\text{BO}^2}}$

$=\sqrt{\dot{\text{PC}}^2+\dfrac{\text{PC}^2.\dot{\text{OT}}^2}{\text{BT}^2}}=\sqrt{\dot{\text{PC}}^2+\frac{1}{4}\dot{\text{AP}}^2}=\sqrt{\dot{\text{PC}}^2+\frac{1}{4}\dot{\text{OP}}^2}=$

$\sqrt{\dot{\text{PC}}^2+\dot{\text{PD}}^2}=$DE, and the rectification=DE. Moreover, since AC : AB=2OB :: OT : OB :: PM : PC$=\sqrt{\text{PM}^2+\text{MC}^2}=\sqrt{\text{MC}.\text{AC}}$

$=\dfrac{\text{AB}.\text{PM}}{\text{AC}}$, AC=MC$+\dfrac{\text{PM}^2}{\text{MC}}=\dfrac{\text{PC}^2}{\text{MC}}$, PC^2 : AB.MC :: PM : PC,

and AB$^{\frac{2}{3}}=\dfrac{\text{PM}^{\frac{4}{3}}}{\text{MC}^{\frac{2}{3}}}+\dfrac{\text{MC}^{\frac{4}{3}}}{\text{PM}^{\frac{2}{3}}}$ the curve's equation.

Mr John Farey, *late of London, now of Woburn, says:*

Taking x the abscissa AM on a line bisecting the right angle, y the perpendicular ordinates MP, and for the given hypothenuse; the equation of the curve will be $\overline{x^2+y^2}^3=\frac{1}{4}a^2.\overline{x^2-y^2}^2$, or $y^6-\frac{1}{4}a^2-3x^2.y4+\frac{1}{2}a^2x^2+3x4.$ $y^2-\frac{1}{4}a^2x4+x^6=0$, and the figure as in the margin, &c. &c.

But we are sorry the lateness of his letter prevents the insertion, at length, of his ingenious solution.

Other ingenious solutions were given by Messieurs G. Asheton, A. Buchanan, Jas. Cunliffe, Chr. Cox, Wm. Johnson, Ja. Nicholson, and Rob. Wilkinson.

XV. or Prize Question 968, answered by Mr John Nuttall, *Schoolmaster, Bury.*

Let the line AB represent the rod, D its middle point, C the point or centre about which it revolves, and through which it slides. Put AD=DB=a=50 feet, the variable distance CD=x, where t is the time it has been in motion, and when v is the velocity of the motion

A　　　　　D　　　C　　　　　B
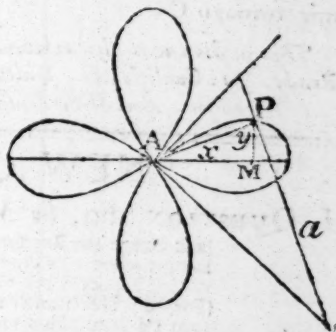
through the point C; also $c = \frac{1}{12}$ of a foot the dift. DC at the beginning, and $b =$ the weight or quantity of matter in each of the equal bodies, and $d = 10$ feconds, also $p = 3 \cdot 1416$. Then, by the nature of centrifugal forces, $\frac{p^2 b}{d^2} \times \overline{a + x} =$ the motive centrifugal force in the direction CA, and $\frac{p^2 b}{d^2} \times \overline{a - x} =$ that in the direction CB; theref. the difference of thefe two forces being divided by the quantity of matter in both the bodies, gives $\frac{p^2 x}{d^2} = n^2 x$ for the accelerative force of the rod in the direction CA, putting $\frac{p^2}{d^2} = n^2$; then, by the laws of motion $n^2 x \dot{x} = v \dot{v}$, the fluents of which give $n^2 x^2 = v^2$; but when $x = c$, $v = 0$, theref. the fluents corrected are $v^2 = n^2 . \overline{x^2 - c^2}$. Again, by the faid laws, $\dot{t} = \frac{\dot{x}}{v} = \frac{\dot{x}}{n \sqrt{x^2 - c^2}}$ the fluxion of the time; the fluent of which is $\frac{1}{n} \times$ hyp. long. of $x + \sqrt{x^2 - c^2}$, or corrected as above $t = \frac{1}{n} \times$ hyp. log. of $\frac{x + \sqrt{x^2 - c^2}}{c}$ is the true time of defcribing the diftance $x - c$. And this, when $x = 50$, gives $t = 22 \cdot 56$ feconds, the time of the fhorter end paffing through C.

This queftion was alfo anfwered by Meffieurs Amicus, G. Afhston, C. Brady, Ja. Cunliffe, G. Dalton, Da Kinnebrook, Lieut. Wm. Mudge, Ja. Nicholfon, Abel Whitehoufe, and Rob. Wilkinfon.

NEW QUESTIONS.

I. Question 969, *by Mr* James Wilding, *High Ercall.*

Jack Guage the Excifeman's a good-natur'd fellow,
Except when he's croft, or is more than half mellow,
Which happen'd laft night, when I offered a wager,
(For he prides himfelf much on being a gauger,)
That I'd fhew him a rule by which he may know
The content of a tub from the meafures below.
At firft he look'd wife, chang'd his face, and then fwore
He never had feen fuch a queftion before.
What! the top, but no bottom diameter given!
I'll double the wager, or lay ten to feven.
Thus in confidence trufting the queftion's not true,
He hazards the bet, and leaves it to you.

Top diam.	48 inches = AB
Diagonal	50 = AD
Stave's length	30 within = AC
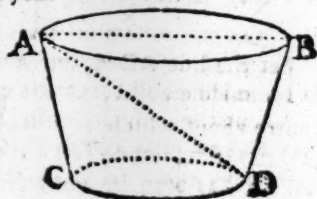
II. Question 970, *by Mr* Tho. Woolſton, *Adderbury*.

Suppoſing a perſon lays out 50l. in draining his farm, and the improvement anſwers, or pays him, at the rate of 10 per cent. per annum; how long will it be in redeeming the principal, or paying off the money laid out; reckoning compound intereſt for it, at the rate of 5 per cent. per annum?

III. Question 971, *by Mr* Wm Armſtrong, *Carliſle*.

There is a field in the form of a parabola, whoſe baſe is 10 chains, and its abſciſſa 15 chains; required the length of a line drawn from one end of the baſe, ſo that it may divide the field into two parts having the ratio of 3 to 2, the greater part lying next the baſe?

IV. Question 972, *by Mr* Olinthus Gregory, *Yaxley*.

There is an inflexible rod, void of gravity, 26 inches long, at one end of which is ſuſpended 1 cwt. 1 qr. $23\frac{1}{2}$lb. of ſugar, in a barrel that weighs 21lb.; at 1 foot diſtance from this end hangs a weight of $8\frac{1}{2}$lb., and 4 inches farther a weight of $6\frac{1}{2}$lb.; alſo at 7 inches from the other end a weight of 5lb., and at this other end a weight of $4\frac{1}{2}$lb. Quere the point of the rod, which being made a fulcrum, theſe weights, &c. will remain in equilibrio?

V. Question 973, *by Mr* R. Mountjoy, *Chittlehampton*.

If an equilateral triangle, whoſe area is given $= 10000$ ſqu. feet; be ſurrounded with a walk every where of the ſame breadth, and equal to the area of its inſcribed circle; it is propoſed to determine the breadth of the walk.

VI. Question 974, *by Mr* James Cunliffe, *Weſthoughton*.

To find three whole numbers ſuch, that the ſum of every two of them may be a ſquare number, and alſo that their ſquares may be in arithmetical progreſſion.

VII. Question 975, *by Mr* Wm. Robinſon, *Alnwick*.

Required to find the leaſt quantity of ſheet lead, of $\frac{1}{5}$ of an inch thick, to make a ciſtern to contain 85 gallons of ale meaſure, where the length, breadth, and thickneſs, are in arithmetical proportion.

VIII. Question 976, *by Mr* Ralph Burton, *of Salton*.

There are certain low grounds in my neighbourhood, which at preſent are drained by a ſewer running two miles in length, and has 12 feet perpendicular deſcent; but, if conſent can be obtained, it is propoſed to make the drainage only one mile in length, with 3 feet perpendicular deſcent. Quere which of the two ſewers will evacuate ſooneſt, ſuppoſing their ſections equal and ſimilar?

IX. Question 977, *by the Rev.* Mr L. Evans.

In turning out the leſſons for the morning ſervice, on a certain day laſt year, I obſerved, that the digits compoſing the chapter for the firſt leſſon were inverted in that for the ſecond; alſo the difference of the ſquares of the two chapters (the firſt being the greater number) $= 1485$, and the difference of their cubes $= 66177$. Hence the two leſſons may be known, and the day of the month.

X. Question 978, *by Mr* John Dalton, *of Kendal*.

There is a rain guage (or veſſel with a circular aperture ſet to receive the falling rain); by ſome accident the gauge has been turned aſide a little, ſo as the plane of the aperture makes a given angle (5°) with that of the horizon, and the direction of the common ſection of the two planes is alſo given; now admitting that $q =$ the quantity of water caught any day by the gauge in ſuch a poſition, and that the direction of the wind (S. W.), and the angle made by the falling rain with the horizon (30°) are both given: It is required to determine, by a general theorem, the quantity of rain that would have been caught by the ſame gauge if truly horizontal.

XI. Question 979, *by Mr* A. Buchanan, *Sedgefield*.

On the radius of a given ſemicircle ABC there is deſcribed the ſemicircle DEC, and from the point C there is drawn any line CEG to cut the ſemicircles in E and G. Now if CEG be produced to F, ſo that FG may be always equal to EG; required the equation and area of the curve which is the locus of F.

XII. Question 980, by Mr John Liddell, Hovingham.

Adjoining the canals at Hovingham, lat. 54° 10′, a spruce fir grows perpendicular to the plane of the horizon, and on the 12th of May 1793 the transverse axis of the curve described by the shadow of its top, on the surface of the water, was 245 feet. Quere the height of the tree, and the area of the hyperbolic space over which its shadow passed, during the sun's apparent diurnal revolution, from the east and western points of the prime vertical.

XIII. Question 981, by the Rev. Mr John Hellins.

It is proposed to find the correct value of z from the equation $\dot{z} = \dfrac{\dot{x}}{1 + x^3}$, where x and z begin together, in series which shall converge when x is greater than 1; and to perform the whole by means of series.

XIV. Question 982, by Amicus.

To find, without series, the value of x in the equation $\ddot{x} - x\dot{z}^2 = \dfrac{2\dot{x}\dot{z}}{t}$; where z is the circular arc whose tangent is t, and radius unity.

XV. or Prize Question 983, by James Glenie, Esq.

In the palace of one of the Persian Kings 'tis said there was a triangular area, such, that the cubes on two of the sides were together equal to thrice the cube on the third side, which was 200 feet in length; and that the area itself contained exactly 10000 superficial feet. Supposing this to have been really the case, it is required to construct the triangle by common or plane geometry.

N. B. Whoever solves this problem will find himself sufficiently rewarded for his trouble, by the discovery of a number of new propositions which the solution will naturally suggest to him.

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